THE BOSTON
Medical and Surgical
JOURNAL

Volume 191 AUGUST 28, 1924 Number 9

ORIGINAL ARTICLES

THE PROBLEM OF THE INDUSTRIAL LAME BACK

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"All you have really to do is to keep your back as straight as you can and not think about what is on it." Ruskin was metaphorically speaking, but we doubt whether any more sound, direct advice can be given to every man and woman engaged in industry.

The excuse for the paper is the fact that lame backs represent probably the most important group of industrial accident cases. In a large metal working plant back strains represent about 20 percent of all accidents. They are important, not alone because of their frequency, but because of the lack of accurate diagnoses and because of the difficulty of disproving the man or woman's assertion of back pain. Let us say at the outset that neither of us is seeing a large number of industrial lame backs. Both of us are seeing many cases of back pain and just enough of the industrial type in the capacity perhaps of referees to have their problems forcibly presented to us. Contrasts have sharp outlines, and in our experience these contrasts have been of two kinds. One is the contrast between the attitude of mind of the average civilian not concerned with medico-legal or employers liability questions and the attitude of mind of the industrial accident case. The other contrast, we are sorry to say, is the contrast between careful search for the cause of symptoms and haphazard prescriptions for the relief of pain.

If the paper can be said to have a purpose, it is (1) to state the problems, (2) to suggest methods of diagnosis, (3) to catalogue the common causes, and (4) to outline rational methods of treatment for these common causes.

THE PROBLEMS

We will try to state the problems which seem to us to be crying most loudly for solution. We have attempted to enumerate them in what seems to us the order of their importance.

First are the cases of back pain arising during light or heavy industry in persons who habitually hold and use their bodies in positions of mechanical disadvantage. The best demonstration of the prevalence of this potential of back pain was furnished by the draft. Large numbers of these individuals with faulty statics were not accepted. Many of them were accepted and quickly shipped over seas for intensive training. Our observation led us to believe that an unfortunately large proportion of them broke down under this training. So large was the number that the army authorities were actually alarmed and special training battalions were organized. A fact for industry to remember is that by patient, but not excessively prolonged training, it was possible to reclaim and make fit 80 percent of these derelicts.

Watch an old piano mover work and you will see him lift with his thighs and not with his back. Seat a stenographer properly and she will make fewer typographical errors and probably have less difficulty with her menstrual periods and less lame back.

We are of the opinion that the second most important problem is presented by the persistent symptoms so often following the acute strains or accidents of industry in which the Roentgenograms reveal no gross lesion. The need of accurate diagnosis in these cases is acute. We believe our first endeavor should be to demonstrate the presence or absence of persisting strains or ligamentous relaxations. We think we can show that careful Roentgenograms, usually stereoscopic, may help to furnish the evidence we seek.

We are inclined to believe that the problem which next merits attention is, like the first, a combination problem. In hard working men over forty it is possible to discover the presence in the spine and other joints of what has been termed hypertrophic or osteo or degenerative arthritis. The over-deposit of calcium at the edges of the vertebral and sacro iliac articulations, accompanied as we know it is by early degenerative changes in the articular cartilage, is revealed in the Roentgenogram. The subjective symptoms of the early lesions of this type of arthritis may be nil, until some injury, perhaps some very slight injury, increases the local activity of the process. The symptoms may then be out of all proportion to either the severity of the injury or the underlying disease. We feel quite sure that the provocative nature of trauma in these cases has not been fully appreciated. They are amenable to treatment in hospital and private practice, yet the Roentgenograms before and after are identical. The potential of the underlying disease, however, must always be in our minds. It is a two-edged sword; one edge protects the employer defending his possible claim that the accident cannot be the whole cause of the symptoms, and the other edge substantiates the man's claim that whereas I was well, now I am sick, and it is my injury which has reduced me to this sorry state.

A fourth complex problem is the problem of the relation of anatomical variations, that is, congenital abnormalities, to accident or injury. These variations from normal,—six lumbar vertebrae, enlarged and possibly impinging transverse processes, partial or complete sacralization of the last lumbar vertebra, have obviously existed long before acute or chronic symptoms of back pain began. Is their association casual or causal? Our conviction is that it is neither. When any considerable departure from normal anatomic relations exists a careful, truthful history will very often tell the tale of a previous weak back, never crippling but intermittently symptomatic. The association is, therefore, not casual. Per contra, the variation itself cannot be the sole cause of the symptoms, since it has existed many years in the absence of discomfort. The association, therefore, cannot be, strictly speaking, truly causal. The abnormality must, we think, be looked upon as potentially contributory. These backs are unquestionably more easily strained; they seem to be more susceptible to a traumatic or toxic or hypertrophic arthritis. The commonly existing bursae between an enlarged transverse process and the top of the sacrum, the true joints between the process and the sacrum or ilium in a partially sacralized, but not completely fused last lumbar, are very subject to traumatic lesions. Nerve irritations from swelling or adhesions may be expected to occur more often and account for the frequently severe sciatic pain and the protective deviations of the spine which have been called sciatic scoliosis.

Loath as we are to complicate our problems and add to the difficulties of their solution, a fairly wide experience with these surprisingly common congenital conditions has convinced us that the association between the occurrence and persistence of symptoms and the presence of these abnormalities is an intimate one. The facts are as they are.

The last special problem which we shall discuss is perhaps not the least important of our series. It is surely one of the most difficult. We may name it the psychic problem. As we have said in our introduction, it is sometimes impossible to prove that a patient's assertion of back pain in the absence of demonstrable lesion is an untrue or even an exaggerated assertion.

On the one hand, we recognize the honest worker with a family which cannot be supported by his compensation, who finds himself unable to continue to work steadily at his old, heavy job because of persistent or recurring lame back. He becomes discouragingly convinced that he never can return to his old trade, and being unfitted for any other, it is hard to persuade him that treatment may yet avail. "Hope has proved such a poor virtue that disappointment has paid her debts," and unfortunately, the debts of hope are not the hard cash debts of the grocer and the milk man. Surely this man's mental inhibition towards recovery is not a malingering inhibition.

On the other hand, we have become cognizant of the "Seasonal back." Among themselves the members of the Massachusetts Accident Commission call these backs by the name of an excellent hospital to which these men go for treatment in the late autumn with a certain disconcerning regularity. The patient appears at the clinic complaining of back pain. The examination reveals a back limited (perhaps by intent) in motion. The Roentgenogram may suggest a mild hypertrophic arthritis or may reveal no lesion. After a trial of physiotherapy, which fails to relieve symptoms, a plaster cast is applied which affords relief as long as it is worn, but fails to cure until the better weather of the spring arrives and outdoor working conditions become more agreeable. The butterfly emerges from his chrysalis. The compensation dole has made a lazy hibernation possible.

The Industrial Accident Boards are endeavoring to discover these malingerers and limit the extravagance of their support, but protected as they are by a well meaning though misapplied treatment, the attempt of the authorities is often unavailing. It behooves us as practitioners to be on our guard against such cases, and to detect more of the seasonal lame backs.

METHODS OF EXAMINATION

We shall next in schematic form outline the methods of examination which in our opinion should be followed as a routine in all lame back cases in which any problem of accurate diagnosis is presented.

Dr. Smith-Petersen in a recent unpublished paper has made a real contribution. We quote him in several instances.

History taking is an art and the physician must needs become for the moment a sympathetic barrister in eliciting and evaluating and sifting the wheat from the chaff. The exact method of onset, the immediate and late symptoms, the exact distribution of the pain and its character the patient alone can tell us and we must possess ourselves of this knowledge in every case.

1. Strip the patient and note the general body form and the muscular development and tone.
2. Patient standing.
   a. General statics, body posture in relation to the centre of gravity, abdominal contour, weight bearing lines of the feet.
   b. Note exaggeration of the normal curves of the spine, abnormal curves, deviations.
   c. Motions of the spine, active and passive.
   d. Muscle spasm, general and local.
   e. Chest expansion.
3. Patient sitting.
   a. Motions of the spine, active and passive. In lumbo sacral cases, forward flexion will be still limited; in sacro iliac it will be free because of support of the pelvis and relaxation of the hamstrings.
   b. Reflexes, disturbances of sensation and motion in the limbs.
   c. Condition of the circulation; blood pressure, heart, lungs, tonsils, teeth, etc.
4. Patient in dorsal recumbency.
   a. Measurements of the length of the lower limbs and the comparative size of the calves and thighs.
   b. Contours of all joints by inspection and palpation.
   c. Motions of all joints, active and passive.
   d. Flexion of thighs on pelvis with knees bent. In lumbo sacral lesions, this may be expected to be painful; in sacro iliac, not painful because the pelvis moves more as a whole.
   e. Flexion of the thighs with the knees straight, hand beneath lumbar spine to detect relation between expression of pain and movement of spine. Helpful in discriminating between low spinal and sacro iliac lesions.
   f. Ability to assume and symptoms caused by the opisthotonos position. Agnew's sign.
   g. Abdominal palpation. Special reference to faecal masses in colon.
   h. Points of tenderness, especially the pubic symphysis.
4. Patient in lateral recumbency.
   a. Symptoms caused by lateral compression of crests. Care taken to have patient lie on side of lesion and to sustain the pressure on the crests. If painful, suggests sacro iliac lesion.
5. Patient in ventral recumbency.
   a. Contours of spine, pelvis and hips.
   b. General and local muscle spasm.
   c. Points of tenderness in back and along nerve trunks.
   Note especially coccygeal, sacral, sacro iliac, posterior-superior spines, ilio lumbar ligaments, lumbo sacral joints and spinous and transverse process tenderness.
   d. Symptoms and signs elicited by extreme flexion of the knees.
   e. Symptoms and signs elicited by hyperextension of the thighs.
   f. Anatomic relationships of bony prominences.
   g. Rectal and prostatic examination.
6. In what position in recumbency is patient most comfortable? In sacro iliac lesions, for example, the patient is usually uncomfortable if he lies long on the side of the lesion. A lumbo sacral case is usually comfortable lying on either side or on the back.
7. Roentgenological examination.
   a. Antero posterior and lateral views of spine well above and below suspected region.
   b. Stereoscopic views of the lumbo sacral and sacro iliac regions.
8. Such laboratory examinations as are considered likely in the individual case to yield important data. Urine, blood, spinal fluid, Wassermann, etc.

We will next attempt to catalogue the common causes of back symptoms.

1. Referred pain from
   a. General debility and mental or physical fatigue, an important cause frequently investigated and a background which should not be neglected.
   b. Gynaecological and genito-urinary lesions, more often over than under estimated as possible causes. Graves' statistics, however, seem to show that uterine retroversions before the menopause are associated with backache, which is relieved in a large percentage of cases by successful surgical correction.
   c. Neurological lesions; spinal cord tumors. A small group with suggestive signs often overlooked. Lumbar puncture sometimes combined with puncture of the cisterna magna may reveal a block or altered fluid or pressure.
   d. Imperfect joint mechanism of the lower limbs, especially faulty weight bearing lines in the feet. A common contributory and sometimes a primary cause of back pain.
2. Static or postural causes.
   a. Body type susceptibility. One large industrial company refuses to employ for hard labor any man over 5 ft. 10 inches in height and strives to obtain the square, stocky back of the 5 ft. 8 inch man. The long slender back does not stand the strain.
   b. Imperfect mechanical use of the body necessary to the efficient performance of the task.
   c. Occupational demands which require the use of the body in positions of potential strain.

d. Partial or complete spondylolisthesis which may result from such use. This is suggested by the attitude and confirmed by antero-posterior and lateral Roentgenograms.

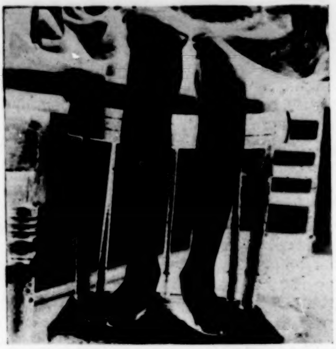

FIG. 1. Flat feet showing change in weight bearing.

3. Metabolic, toxic or infectious, affections of the muscles, called lumbago or myositis. These names are too often offered as diagnoses when the cause of the symptoms is mechanical. We believe, however, that these conditions may exist alone and induce very acute and painful symptoms, fortunately of short duration. Exposure seems to be a frequent etiologic factor.

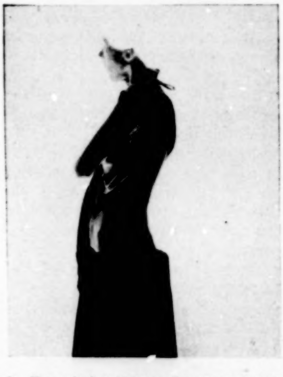

FIG. 2. Shows bad posture as the cause of back pain.

4. Acute Traumata.
   a. Strain of aponeurotic or muscle attach ments, tears of ligaments. The history the points and distribution of tenderness and the character of the limitation of mo tion are the important diagnostic aids.
   b. Fractures of the transverse and spinous processes. The nature of the injury, usually falls or blows, the sharply and appropriately localized tenderness and the Roentgen-Ray determine the diagnosis. It is unfortunate that the man is so often told that he has fractured his spine. The average duration of disability in private cases is much less than in compensation or medico-legal cases, if apposition and alignment are good.

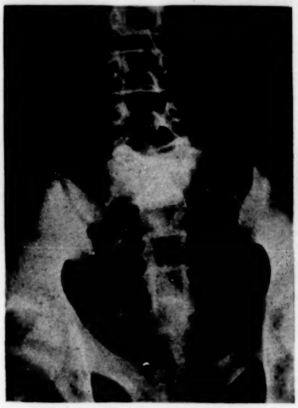

FIG. 3. Partial spondylolisthesis.

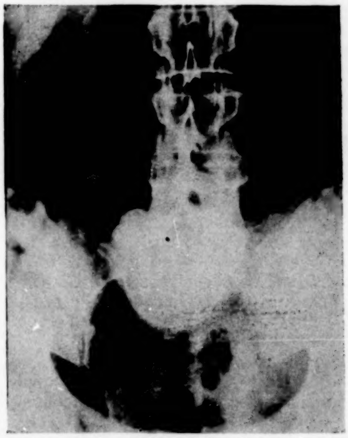

FIG. 4. Complete spondylolisthesis, fifth lumbar in front, looking directly on to the articulating surface.

   c. Compression fractures of the vertebrae and sacrum. These represent perhaps the most commonly overlooked and under treated serious industrial lesions. In Sever's analysis of 24 industrial fractures, the minimum period of disability before the case was seen by the impartial referee was 17.7 months. Impacted fractures of the sacrum have been in our experience comparatively unimportant injuries.

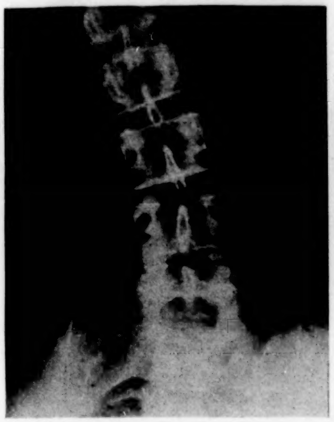

FIG. 5. Acute sprain. No pathology in the spine. Position due to muscular ligamentous tears.

d. Serious fractures and dislocations of the spine and pelvis ordinarily give rise to such serious symptoms as to be rarely missed in the clinical and Roentgenological examination. We have known fractures of the pubic and ischial rami to be overlooked and to be productive of prolonged discomfort.

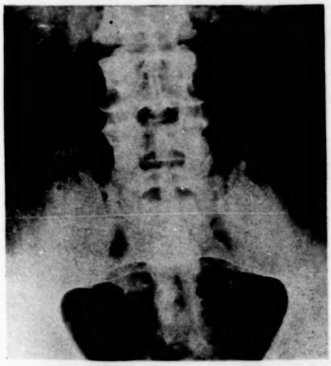

FIG. 6. Shows fracture of the transverse processes of the third and fourth lumbar bodies.

5. Arthritis.
   a. Type I, ankylosing, using the terms metabolic, toxic, infectious synonymously.
      1. "Poker back," spondylose rhizomelique, Strumpell-Marie type, with markedly limited chest expansion, probably due to some infectious agent, frequently but not always subsequent to a Neisser infection.

FIG. 7. Compression fracture ninth dorsal body from a slight injury.

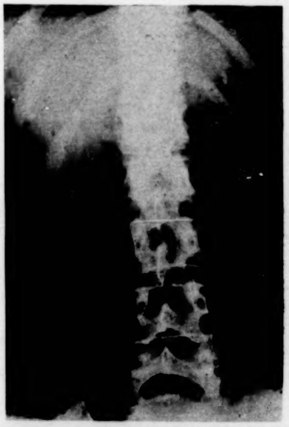

FIG. 8. Antero-posterior view, slight compression fracture first lumbar body, showing regenerative changes.

      2. Metabolic, toxic, or infectious, due to

some remote focus, teeth, tonsils, G. U. tract and intestinal canal. We believe that faulty elimination is perhaps the most common cause of this type. Daily movements of the bowels do not mean daily thorough evacuation.

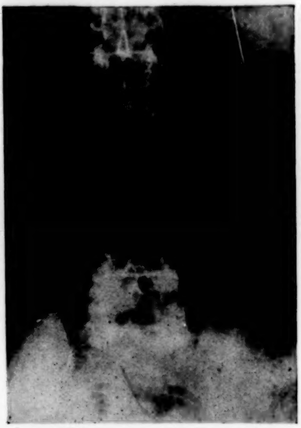

FIG. 9. Strumpell-Marie type arthritis showing calcification extending into the interarticular ligaments.

b. Type II, hypertrophic, osteo, degenerative, non-ankylosing arthritis, using the terms synonymously.

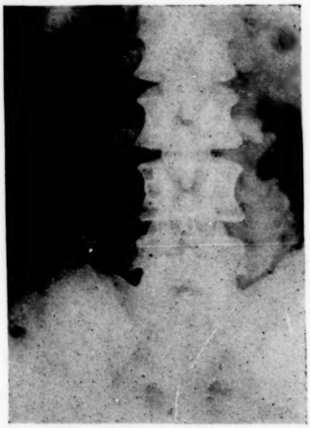

FIG. 10. Mild hypertrophic arthritis.

One of the common primary and one of the very common contributory causes of lame back in late adult life. The Roentgenological examination is the only certain diagnostic method. In younger subjects, a type of irritative arthritis, in no way to be differentiated Roentgenologically from the metabolic hypertrophic type, develops about a localized injury to the bone or joint and causes persisting symptoms.

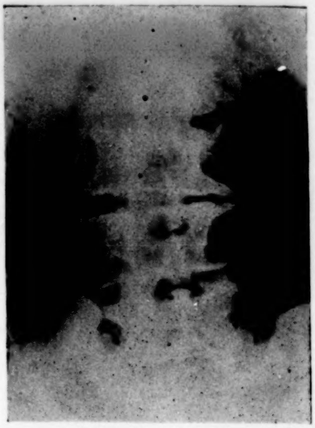

FIG. 11. Extensive hypertrophic or degenerative arthritis with regenerative changes between the third and fourth lumbar bodies, cartilage eroded.

6. Anatomic variations. O'Reilly's large series of anatomic variations indicated that 50 percent had back symptoms of varying severity.

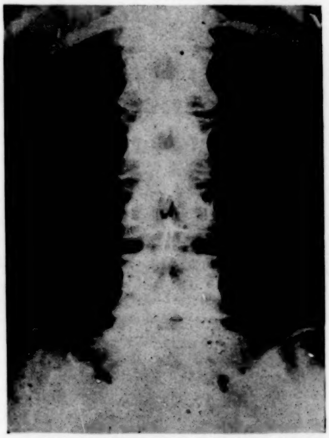

FIG. 12. Impinging transverse processes. Localized arthritis between the second and third lumbar bodies.

a. Impinging spinous or transverse processes. Spinous processes may impinge, not only because of their abnormal length, but also because of an increased lordosis from faulty posture. Enlarged transverse processes of the fifth lumbar may impinge upon the sacrum or ilium.

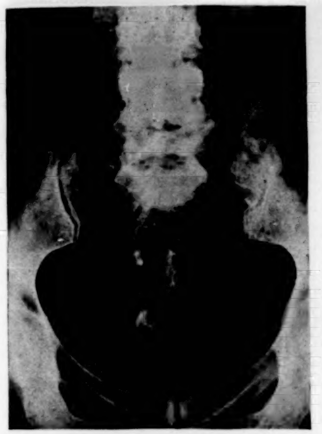

FIG. 13. Shows sacralized transverse process of the fiftn lumbar body with loose sacroiliac joint on the opposite side and disalignment of the pubes.

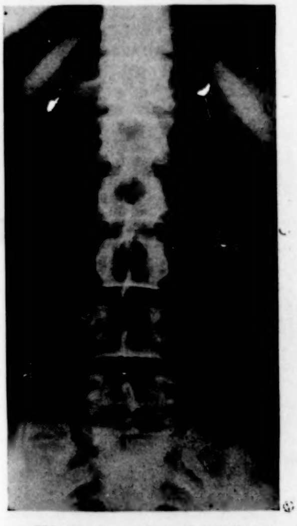

FIG. 14. Shows six lumbar bodies.

In both impinging spinous and transverse processes adventitious bursae develop and may be the seat of irritative or infectious inflammation. It is conceivable that lockings may occur, retained by a (pseudo) protective muscle spasm.

b. Partially or asymmetrically sacralized fifth lumbar vertebrae change normal leverages. A true joint on one or both sides between the process and the sacrum or ilium may exist and these joints seem specially subject to strain.

FIG. 15. Shows atypical tuberculosis. In lateral view—very little involvement of the cartilage.

c. Spina bifida occulta. We know that this variation may be productive of no symptoms, but is sometimes associated with progressive deformities of the lower limbs, talipes equinus, pes cavus, etc. It may conceivably be provocative of back pain if sufficient to lessen stability, or of referred pain if fibrous bands cause nerve pressure.

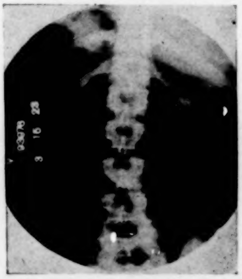

FIG. 16. Reveals atypical tuberculosis in antero-posterior view. Erosion portion of left side lumbar body.

7. Specific Diseases.

a. Tuberculosis. If we always suspect tuberculosis we shall miss it less often. In a survey of industrial backs, the number of cases would be small, but their importance large. In adults, its lesions are surprisingly atypical, even in the Roentgenogram. Narrowing of the intervertebral space is perhaps the most constant sign. We have failed to make a correct diagnosis of the subsequently proved lesion many times.

The early symptoms of tuberculosis may be surprisingly slight and unsuggestive and the patient may even be in excellent nutrition.

b. Syphilis of the spine. A comparatively rare diagnosis in the East. Perhaps it should be less rare. The history and the Wassermann reaction may serve to distinguish it from early or late tuberculosis. Typical Charcot's lesions may be discovered before the diagnosis of tabes dorsalis can conclusively be made.

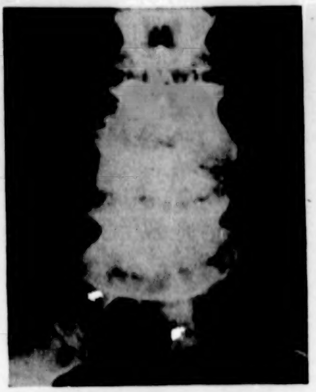

FIG. 17. Reveals Charcot spine.

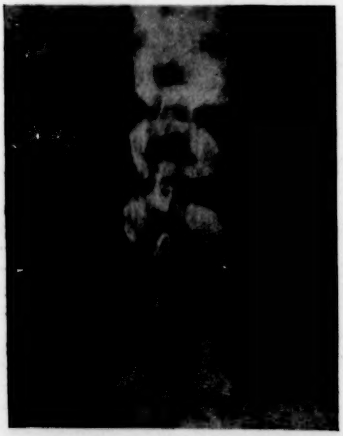

FIG. 18. Reveals osteomyelitis portion third lumbar body with bridging of bone between the second and third lumbar bodies developing in three months.

c. Typhoid spine. The rare typhoid lesions of the spine may not give rise to symptoms until months after apparent recovery from the disease.

d. Osteomyelitis of the vertebrae. Usually of acute onset and serious import. The early Roentgenological signs may be nil.

8. Neoplasms. Rare but worthy of being catalogued. Giant celled tumor; sarcoma; metastatic carcinoma of the aplastic and destructive type; multiple myeloma.

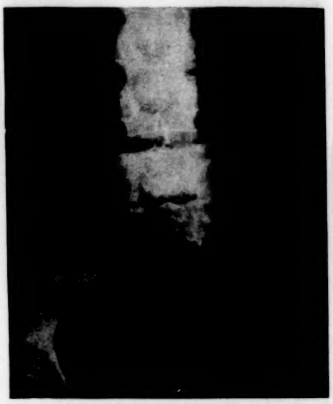

FIG. 19. Reveals metastatic carcinoma fifth lumbar body following amputation of breast.

9. Combination of causes. Although catalogued last, these to our minds represent one of the very important classifications of the difficult cases. There may be numerous combinations. Two common ones will serve as illustrations.

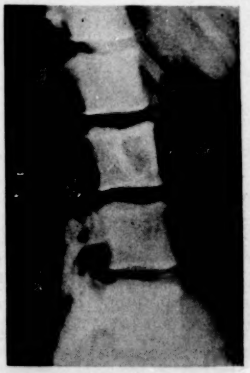

FIG. 20. Reveals a cyst of the third lumbar body. Pain on this level.

a. Postural or occupational strains in subjects with susceptible body forms or anatomic variations which predispose to strain.

b. Postural or traumatic strains superimposed upon a pre-existing hypertrophic arthritis.

Unless these combinations are constantly before our minds and in a given case recognized, our treatment is likely to be partially or totally unsuccessful.

TREATMENT

The necessary limits of this paper demand that only the outlines of our opinion as to treatment be sketched.

1. The treatment of our first class.

"Referred pain" is obviously primarily concerned with the removal of the essential cause, be it general debility, gynaecological, genito-urinary, neurological, or static. We must remember that even when this cause is removed, the secondary muscular weakness, perhaps adhesions or joint strains, may cry for developmental exercises, physiotherapy or temporary support.

2. The postural or occupational class requires patient work with exercises and support until a stance consistent with reasonably correct body mechanics has become habitual. No more satisfactory response to treatment of backache rewards us than in a case of this type when the subject is made to understand the cause of his pain and whole heartedly co-operates in the treatment.

3. We need to say little as to the treatment of a true lumbago or myositis. The acute attack is almost self-limited. Strapping often relieves symptoms. Freer elimination seems to shorten the duration. Preventive therapy consists of the avoidance of repetition of the exciting agents, exposure or faulty metabolism, et cetera.

4. In regard to the fourth class of acute traumata, we have very definite ideas as to treatment.

a. We believe that the brilliant and rapid chiropractic, osteopathic, and we hope regular, cures are accomplished in our first subdivision of this class, which we have designated as strains of the aponeurotic or muscle attachments or minor ligamentous tears. The acute injury is immediately followed by acute muscle spasm, which is nature's protective response. This protective response may fix a malpolition of muscle fasciculus or tendon, or even of a small articulation, which fixation is crippling.

It can do little harm to attempt by manipulation, usually without an anaesthetic, to effect a restoration of normal relations. We shall be often rewarded by a surprising sudden relief of symptoms and a relaxation of the originally protective and subsequently locking muscle spasm. The trick we can teach the professional manipulators is to protect until healing has taken place by adhesive strapping or plaster of Paris after the reduction. They are fast learning the trick.

b. Fractures of the transverse or spinous processes in civil practice are easy to relieve by simple fixation if the diagnosis is made promptly. They are often the bane of the compensation or medico-legal case, for they are usually called fractures of the spine, and the man or his legal advisor is quick to take advantage of this serious sounding diagnosis.

c. Compression fractures of the vertebrae, if they are recognized soon after the injury, have in our experience and that of other surgeons been almost universally amenable to treatment by complete fixation, usually in recumbency, for six to eight weeks, followed by partial protection for two or three months longer. The old untreated compression fractures are honestly productive of weakness, local and referred pain, and disability of indefinite duration, "Kummel's disease." We are inclined to believe that operative procedures designed to artificially ankylose the spine for one or two vertebral joints on either side of the lesion are the most reliable methods of treatment if a permanent wage earning relief is to be sought. Impactions of the sacrum have resulted in no permanent disability in two cases seen recently.

d. Serious fractures and dislocations with or without cord compression are individual problems already discussed fully in medical literature. A review of this literature will convince even the casual reader that no standard treatment can at present be formulated.

5. The arthritic class is to us intensely interesting.

a. In Type I, the metabolic, infectious, and eventually (if unrelieved) ankylosing form, we must obviously search for and eradicate or control the focus. While we do not wish to minimize the importance of focal infections, G. U., tonsils, sinuses, teeth, we strongly desire to emphasize the common association of unsuspected intestinal stasis and the influence of an unbalanced diet. We should not accept the patient's statement that his daily stool or stools, naturally or artificially accomplished, rid him of deleterious and perhaps causative absorption. Howe can produce a joint stiffness with perfect regularity in guinea pigs and monkeys by a scorbutic diet and relieve it with equal regularity, if it has not progressed too far, by an antiscorbutic diet. This is probably a true infectious arthritis caused by a lowered tissue and body fluid resistance to bacteria which are normally harbored without harm because of the normal resistance of the host.

In our treatment, therefore, we must strive as far as possible by the mechanical means of abdominal massage, enemas, oil and agar preparations, to overcome intestinal stasis and to so balance the diet that the body tissues and fluids may possess normal resistance to infection. Physiotherapy and manipulative procedures and temporary protection are often helpful in completing the relief.

b. Type II. A pre-existing hypertrophic or degenerative arthritis, which so often complicates our pictures, may be rendered so acute by trauma as to be deceiving. Rest, support, physiotherapy, speeding up elimination, but never manipulation, are the keynotes of treatment. The eradication of possible foci is in our opinion less likely to afford relief than in Type I, unless added to this supposedly chemical process is an infectious or toxic arthritis as well.

6. Anatomic variations have received much attention in the literature of back pain. We counsel the remembrance of the fact that they exist without symptoms in half of the subjects who possess them. They are apparently potentially symptomatic only. Faulty use of the body from habitual poor posture or occupation often provokes them to cause symptoms. The treatment, therefore, in the majority of cases must consist in overcoming the exciting factor, rather than in attempting to surgically remove the merely contributory cause. Danger lurks in these extensive operations successful as many of them have been.
7. Specific Diseases.

   The treatment of the lesions of the specific diseases mentioned under our seventh classification needs no amplification. Let us simply state our convictions that ankylosing operations on the spine in adults have come to occupy a permanent and important place in affording permanent relief and rendering tuberculosis of the vertebral and sacro iliac joints completely quiescent. Return to laborious occupation has been frequently attained.
8. The treatment of neoplasms also requires no discussion. Fixation affords a purely symptomatic amelioration.

   We have observed a very few cases of inconclusively diagnosed primary neoplastic lesions of the spine, presumably endothelioma of Ewing and the giant-celled tumor of the bone, which have grown smaller and been quiescent over a considerable number of years (ten in one case) by deep Roentgen therapy. As this seems to be the only avenue of successful approach, we should continue to attack the disease by this route. The modern high voltages give promise of more efficient and more constant help.
9. It is trite to say that the treatment of combinations demands a combination of treatments, but such is the obvious requirement. Until we appreciate this fact our therapy is not above reproach. The psychic combination is more often met in industrial or accident cases, but mental inhibition is not a synonym of malingering intent. Conn, in a study of 156 cases, proved to his own satisfaction that in the majority of cases it was possible to make the man understand that "post hoc" was not necessarily "propter hoc" and that a sympathetic approach and a simple careful explanation of the cause of the symptoms often gained the hearty co-operation of the patient. The true malinger can usually be detected, but our suspicion must be confirmed and in our present state of knowledge, the man ought to be given the benefit of any doubt.

SUMMARY

1. Every recent writer on back pain has stressed the importance of careful histories and painstaking examinations in establishing accurate diagnosis. We add our strong plea to theirs.
2. Although it has been sometimes opposed by organized labor, we believe a pre-employment physical examination by a physician who knows not only his medicine, but his mechanics would greatly lessen the numbers of back cases in industry. The labor unions should look upon this, not as an affront, but as an opportunity.
3. In order to make our diagnosis more accurate and our treatment more intelligent, we badly need more anatomic knowledge. The most valuable contribution to the subject which could be made would be a careful analysis of common lesions and their common symptoms based not only on anatomic dissection, but on clinical study of supposed pathology. This study awaits us.
4. It is our conviction that skilled and experienced interpretation of meticulously taken Roentgenograms by Roentgenologists and surgeons familiar with the clinical pictures is the most valuable single aid in disproving, suggesting, confirming or establishing the diagnosis made by careful history and physical examination. The stereoscope and the Bucky diaphragm have become technical necessities.
5. Ability to estimate and evaluate the extent to which psychic factors enter; a routine method of examination of the patient; skill in interpreting the findings of this examination acquired by clinical experience and anatomic

knowledge are the essential pre-requisites in solving the Knotty Problems of Lame Back in Industry.

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PERIARTERIAL SYMPATHECTOMY*

Differential Diagnosis in Various Diseases of the Extremities with Special Reference to Thrombo-angiitis Obliterans

BY ARTHUR W. ALLEN, M. D., F. A. C. S., BOSTON, MASS.

Rene Leriche of Lyons, France, has brought into popularity an operation which he calls Periarterial Sympathectomy and numerous articles by him on this subject have appeared in literature since 1913. The operation is based on the theory that the sympathetic nerve fibres are incorporated in the sheath of the main artery supplying a part. In over one hundred cases of wide variety of painful and ischemic phenomena affecting the extremities, he reports a very high percentage of successes. Among the lesions which he has claimed to relieve by this procedure are causalgia, painful amputation stumps, with and without ulceration, post-traumatic contractures, trophic sloughs after nerve section, trophic oedemas and ischemic sequelae. His enthusiasm has spread to such an extent that recent literature has been rather full of case reports, usually optimistic. Leriche's cases were mainly sequelae of war injuries. Bruning has reported some cases of arteriosclerotic gangrene which have been improved by this operation. Strauss mentions two cases of thrombo-angiitis obliterans which he believes to have been benefited. The benefit, however, in his cases did not prevent the loss of a toe by gangrene in one case and in an early return of symptoms with gangrene in the other case which required amputation of the leg. Halstead and Christopher report a case which they choose to call endarteritis obliterans in which gangrene did not develop; intermittent claudication and pain were relieved and the patient able to work with no return of symptoms for at least ten months after operation. Gundermann reports two cases of rapid healing in X-ray ulcers which had persisted for years. Callender in a very excellent article on the subject reports ten operations on six patients. He goes into considerable detail concerning the physiology of the autonomic nervous system and demonstrates his scepticism of Leriche's theories by terming the operation Arterial Decortication. His results were good in one case of intermittent claudication with an ulceration of the toe in a man of sixty-three and in one case of unexplained burning pain in the thumb and index finger in a man of thirty-five. His other cases were not relieved. Müller reports good results in Raynaud's disease, cervical rib, painful stump from amputation eight years previous, and tropho-neurosis with contractures and pain in the foot. In a case of arteriosclerosis with beginning gangrene of the toes severe pain ceased and gangrene cleared up. A case of gangrene of the fingers was improved. Two cases of Buerger's disease were slightly benefited. He had one fatality following sympathectomy in an elderly woman with acrocyanosis and arteriosclerosis. One case of painful stump was not relieved. Forestier has found the operation successful on the internal carotid for corneal ulcers due to injuries of the head; on the brachial arteries in Raynaud's disease; on the hypogastric in kraurosis of the vulva; on the femoral artery in varicose ulcers. Seifert reports good results in a case of trophoneurosis. He failed to cure one case of syringomyelia. Turbin reports excellent results in causalgia and Platon in this disease cites eighteen cases with sixteen cures. Sherwood reports, enthusiastically, on one case of ulceration of amputation stump that had resisted all other methods of treatment. A year following sympathectomy there has been no return of the ulceration.

The sympathetic nervous system, a part of the autonomic nervous system, is a very complex mechanism. It is well described by Langley in Shaffers' text-book of Physiology. It is definitely known that the aorta is supplied with a sympathetic plexus and that these fibres extend for some distance along the main arteries. It has been commonly believed that some of the sympathetic fibres make their way to the periphery along the sheaths of the arteries. On the other hand Kramer and Todd have demonstrated that vasoconstrictor fibres are found in mixed nerve trunks in the arm. Potts came to similar conclusions regarding the vasoconstrictors supplying the leg and demonstrated that these fibres follow the nerves to the periphery and correspond roughly to the distribution of nerves to the muscle and skin. He also claims that the vasomotor fibres in the sheath of an artery control only that portion of the artery in which they are found and have no effect on the vessel distally to this point. Brüning attempts to reconcile these two theories by suggesting that the branches that follow the mixed nerves are simply connecting fibres with those following the sheaths of the arteries. Leriche in a summary by Lehman apparently believes: (1) That the sympathetic fibres distributed in the various tissues of an extremity are in a state of "balance" which maintains the normal functional conditions of blood supply, secretion and so forth; (2) Any "irritative" lesion in any part of this distribution—i.e., the arterial wall, the nerve, the muscles, etc.—may result in a state of unbalance which will in turn result in circulatory, sensory or nutritional disturbances; (3) a complete break in the cycle of sympathetic influence together with removal of the "irritative" lesion will reestablish the normal balance.

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*From the Third Surgical Service, Massachusetts General Hospital. Read before the Suffolk District Medical Society, March 26, 1924.

The vasoconstrictor fibres in the sympathetic plexus are supposed to be in excess of the vasodilators. If the sheath of an artery with its sympathetic plexus is removed proximal to the affected part, vasomotor control distal to the point of operation is lost. Consequently there is a compensatory vasodilation with hyperaemia. On this is based the therapeutic value of the operation. It was hoped that by removing the vasoconstrictor element in cases of partial arterial occlusion due to thrombosis or sclerosis, that sufficient compensatory dilation would take place in the collateral circulation as well as the partially occluded main trunk itself, to tide the patient over the period when gangrene was imminent but slowly developing. There is usually a definite attempt on the part of nature to nourish the extremity through collateral circulation. If the procedure would produce sufficient vasodilation to halt gangrene and pain until the collateral circulation could be thoroughly established amputation might be avoided.

Leriche describes two reactions following this operation. *The primary reaction* which occurs during the operation in which the vessel is seen to contract to about one-third of its original size, due to a direct stimulation of the vasoconstrictor fibres. This reaction has been found constant by most observers. It leaves the limb colder for a period of three or four hours. *A secondary reaction* follows in from three to fifteen hours after the operation which is characterized by an elevation of local temperature of three to four degrees centigrade, a subjective sensation of warmth, an elevation of arterial pressure and an increase of amplitude in oscillations as shown by the sphygmomanometer. These reactions become attenuated from the fifth to the sixth day and disappear in three or four weeks, the limb returning to normal rather than to its preoperative condition. At least a part of these secondary reactions have been observed by many operators, especially hyperthermia and in some instances a subjective sensation of warmth. Leriche claims that the absence of these reactions prove an imperfect operation and that without them no beneficial results can be expected. A similar phenomena was noted by Halstead following the excision of an aneurism of the subclavian artery; the arm which had been noticeably cold before the operation was found warm objectively and subjectively for a period of several months. Babinski and Heitz had a similar experience following the excision of an arteriovenous aneurism. These observations would seem to bear out Leriche's contention that the principal vasomotor fibres are incorporated in the wall of the main artery supplying a part as they must of necessity have been totally removed during the extirpation of an aneurismal sac. Lehman has been unable to verify these reactions in a series of experiments on dogs. Leriche claims that the vasomotor system in the lower animals is different from that of man and that such experimentation is of little value.

The operation consists in exposing the middle third of the brachial or the femoral artery, as the case may be, a distance of 12 to 15 cm., it is freed from its accompanying nerves and veins, avoiding damage to large branches above and below; small branches are ligated as far from the artery as possible. This being done, a piece of rubber dam is placed under the artery which is then lifted up, the rubber being fastened to the edges of the skin by four towel clips. This facilitates the procedure as the surrounding structures are held out of the way. The outer covering is then split longitudinally a distance of 8 to 10 cm. with a small sharp bevel edged knive. The edges of the split sheath are then lifted up with fine forceps and the dissection begun. This is carried out with the knife, very small blunt curved scissors and a small sharp elevator. The sheath is stripped about one-half way around on one side and a similar procedure carried out on the other half, until the entire sheath is freed. Traction with mosquito forceps on the edges of the sheath aids tremendously in the ease of dissection. The branches which are originally ligated with black silk can usually be seen from the inside of the sheath and ligated a second time without tearing them loose from the artery, as such a tear is a considerable nuisance in that it usually required a stitch through the vessel wall to control the hemorrhage. The sheath, having been freed through its entire distance, is clamped above and below from either side, cut and tied with plain cat gut, as oozing from the vaso-vasora may prove troublesome unless this is done. The thickness of the sheath removed may vary considerably in different individuals but I believe that it is possible to always remove it almost entirely in one layer. This leaves the artery smaller by half or two thirds than it was in the beginning of the operation, due, of course, to mechanical stimulation of vasoconstrictors. When sponged with moist cotton it looks like felt, resembles a nerve more than an artery but does not have the glistening pearl-gray color of a nerve. In many cases pulsation ceases during the operation but often times when the artery is dropped back into its bed, pulsation may be noted, although slight. The fascia and skin are closed without drainage. No wounds have become infected and there have been no sequelae that indicated any damage to the artery itself. The removed sheaths have all been found to contain nerve fibres. Small filaments deep in the arterial wall, as well as the very outside of the sheath have been examined separately and nerve cells have been found in them all. Secondary reactions, as regards hyperthermia, has been noted in the majority of our cases regardless of the beneficial results obtained.

Inasmuch as there has been a considerable difference of opinion among various observers, as regards the diagnosis on the cases we have operated on, it seems fitting here to discuss briefly the outstanding features in the diagnosis of the principal lesions with which we have had to deal. The majority of cases that have presented themselves to our clinic for treatment seem to fall into the class of thrombo-angiitis obliterans. This is a term which Beurger suggested to replace endarteritis obliterans which is still used in some textbooks and was originated in 1879 by Winniwater who thought the disease was due to a new growth from the intima of the artery itself. This was accepted until 1908 when Beurger demonstrated from a large number of pathological specimens that the lesion was one of thrombosis in the arteries and veins and probably infectious in origin, although the etiology at that time could not be demonstrated. Erb attributed it to excessive cigarette smoking. Meyer to a low tolerance for sugar and to a high blood viscosity. Recently Rabinowitz claims to have isolated a specific organism in this disease. Various terms, such as presenile gangrene, spontaneous gangrene, Hebraische Krankheit, endarteritis obliterans and thrombo-angiitis obliterans are found in our records and in the literature as applying to one disease. The latter term based on Buerger's so far undisputed pathological studies seems to be the most logical and should be generally adopted. Quoting from Buerger "The characteristics of this disease have the following group of symptoms—(1) Disappearance of the pulses, particularly the dorsalis pedis, posterior tibial and popliteal, more rarely the femoral, radial and ulnar. (2) The development of typical manifestations of impaired circulation to wit; blanching of the lower extremities when these are elevated above the horizontal, hyperemia, rubor or reddening of the foot in depending position termed erythromyelia during certain stages of the disease and trophic disturbances such as impaired growth and gangrene. (3) True vasomotor phenomena of transitory nature, such as alternating syncope, rubor, coldness, apparently independent of those chronic changes that have been cited above and that are distinctly traceable to the occluded condition of the arteries and veins. (4) The symptoms of pain, either in the forms of intermittent claudication (pain in the calf of the leg or in the foot on walking with cessation when the limb is at rest) or the severe pain that is associated with the advent of trophic disturbances, especially with ulcers and patches of gangrene. (5) The slow course of the disease, symptoms of intermittent claudication or pain, preceding the development of trophic disturbances for months and years. (6) The fact that more than 99 percent of the cases occur in Polish, Galician or Russian Hebrews, and that almost always young males between the ages of twenty and thirty are taken with this disease. (7) The onset of symptoms in the lower extremities, one of the legs being first affected. (8) The comparative infrequency of involvement of the upper extremities. (9) The association of a peculiar type of migrating phlebitis in the territory of the external or internal saphenous, less frequently in the larger veins of the upper extremities characteristic in about 20 percent of the cases. (10) The slow but steadily progressive course, leading in a large majority of the cases to amputation of at least one limb, not infrequently of both lower extremities, and in rarer instances to amputation of one of the upper extremities as well.

It is evident from our cases that other nationalities than the Hebrew may have this disease and although it seems to have strong predilection for young men it may manifest itself as late as the fifth decade.

Raynaud's disease is an affection, the pathology of which has not yet been determined, usually affecting symmetrical parts, the upper extremities more often affected primarily, occasionally the margins of the ears and the tip of the nose. First symptoms are characterized by local syncope or regionary ischemia, coldness and blanching with associated sensory phenomena such as paresthesia and pain, intermittent in character with return to normal between attacks. Later on a disappearance of the asphyxia with a reactive hyperemia and a third stage of dry gangrene. Careful examination of our records reveals the fact that true Raynaud's disease is very rare, most of the cases diagnosed as such were really thrombo-angiitis obliterans. Lannois sums up Raynaud's disease as follows. Four-fifths of the cases are females; begins with ischemia; the affected part becomes bloodless and white, in certain cases there is the deep, dusky congestion of a cyanosed part with or without gangrene. Pain may be absent or acute, and comes and goes; has no relation to position; may precede local asphyxia. It is unaffected by season but in many cases all the symptoms can be brought on by cold. There is analgesia and anesthesia to touch. Local temperature is much lowered and unaltered by posture. Gangrene is local and limited and likely to be symmetrical.

Erythromelalgia (Mitchell) is characterized as follows. In twenty-seven cases only two were females. There is little or no difference in color until the foot hangs down when it becomes rose-red. Arteries throb and parts become of a dusky red or violaceous in tint. Pain is usually present; worse when the part hangs down or is pressed upon. It is worse in the summer from the heat and is eased by cold. Sensation of all kinds are preserved and there is hyperalgesia.

Local temperature is greatly above normal. Dependency causes, in some cases, increase of heat; in others lowering of temperature. There is no gangrene and the disease is asymmetrical.

Senile or arteriosclerotic gangrene is usually differentiated from the other lesions by the age of the patient and the condition of his peripheral vessels, hypertension, etc.

Causalgia (Thermalgia) as described by Weir Mitchell is an intensely painful condition, almost entirely limited to certain sensory areas of the distribution of the medium and sciatic nerves caused by lesions of these nerves at points more or less distant from the areas mentioned, and characterized by local vasomotor disturbances and general hypersensitiveess of the nervous system—a painful vasomotor neurosis due to irritation of a mixed nerve.

Trophic ulcers, edemas, etc., due to severed nerves at some higher level or late neurological lesions form still another group.

In addition to these lesions there is a large group of ill-defined painful ischemic conditions in extremities following trauma. These are characterized by hypothermia, evidence of poor superficial circulation, pain, loss of function, contractures, etc., sometimes associated with ulceration. The term trophoneurosis seems to fit this group of cases. These vary in severity and such lesions in our clinic have usually reacted well to the ordinary physiotherapeutic measures and none have been presented to us for sympathectomy. A great many of Leriche's operations were done on this group of cases. Inasmuch as the condition is very likely due to some disruption of the vasomotor balance it is not surprising that sympathectomy has proved beneficial.

For the past year I have had the opportunity to study and treat these lesions under a special assignment at the Massachusetts General Hospital. The total number of cases considered was twenty-seven, divided as follows: fifteen Arteriosclerotic; ten Thrombo-angiitis obliterans; one Raynaud's disease; one Causalgia. Thirteen of these cases were offered sympathectomy and accepted the operation, in two cases a bilateral brachial operation was done making fifteen periarterial sympathectomies in all. The operated cases may be divided into two main groups. (1) Those with occluded or partially occluded arteries which are further subdivided into (a) thrombo-angiitis obliterans eight cases, and (b) arteriosclerosis three cases. (2) Those with good peripheral pulses; Raynaud's disease one case; Causalgia one case.

Space does not permit detailed case histories but the following summary may be deducted from a study of operated cases. The eight cases of Thrombo-angiitis obliterans were all men, only two of which were Hebrew; two Portuguese; two Irish-American descent; one British and one Finn. The results of this group were such as to indicate that any benefit that may have been derived from the operation was either so slight or so transcient that the operation was hardly worth while. One case of long standing without gangrene was sufficiently relieved from pain to break a drug habit in a period of three weeks. This man returned, however, at the end of three months with pain just as severe and amputation was done in the lower third of thigh. In two cases pain was diminished sufficiently so that the patients did not come to amputation for at least six months. They were unable, however, to work standing on their feet on account of intermittent claudication. The chronicity of this disease, with its spontaneous remissions noted by many observers bringing forth many forms of palliative treatment, must also be considered before attributing these benefits to sympathectomy. In no case did it increase gangrene or hasten amputation. In one case there was a healing of deep ulcerations which remained healed for at least six months. This patient returned, however, with gangrene in other digits five months from the time of sympathectomy. In one case pain was not relieved by sympathectomy alone but a later amputation of the gangrenous digit made him comfortable. This man, having lost both legs at mid-thigh and a finger from either hand before, thought that the amputated fingers done previously without sympathectomy had healed just as quickly. Two cases had no temporary benefit; one had amputation below the knee 16 days following sympathectomy. The other man refused amputation and has not been heard from since discharge. Still another, that had lost one leg and fingers from both hands previously, was treated for gangrene with severe pain in the other leg. He had temporary relief of pain lasting about ten days but amputation was necessary six weeks after sympathectomy in spite of alcohol injections of peripheral nerves.

Two cases with gangrene and one without seem to fall into the arteriosclerotic group. The return of peripheral pulsation in the presence of a gangrenous toe in one case makes me feel that in selected cases of this group the operation might be justified. Another case with gangrene received no benefit, amputation was done nine days after sympathectomy. The third case without gangrene was benefited for a period of about six weeks at which time symptoms of pain and intermittent claudication returned with its former severity.

Pain was not relieved in the case of irritative nerve lesion which I have classed as causalgia, in spite of good secondary reactions following the operation. This case was of long standing, the man having had repeated operations on the distal portion of the median nerve. He was finally considered to be a definite case of traumatic psychosis. In the one case of Raynaud's Disease no marked beneficial change could be attributed to sympathectomy. This patient had other surgical lesions as well as psychosis which required a long stay in the hospital, but there did seem to be some slight general improvement in the circulation of her hands during the hot months. She was always better in summer, however. Patient is reported to have taken her own life in the fall.

The temporary benefits noted in many of the cases may be attributed to an actual break of contact in the sympathetic arc. The early return of symptoms following these results may be due to a regeneration of the vasomotor fibres removed, as Cushing has called attention to the fact that regeneration in these fibres is particularly rapid.

Except for thrombo-angiitis obliterans this experience has been too small to draw any definite conclusions regarding the value of sympathectomy. Our cases have been poorly selected and future study may show that the operation may give favorable results in certain borderline cases by producing a temporary hyperemia sufficient to tide the patient over the period of developing an adequate collateral circulation. It may be found to hasten recovery in stubborn varicose ulcers, trophic ulcers and trophoneurosis following sepsis or trauma.

CONCLUSIONS

(1) Periarterial Sympathectomy can be performed without ill effects to the patient.

(2) Characteristic reactions, although in some cases of short duration, usually follow the procedure.

(3) Slight benefit may occur in the absence of typical secondary reactions.

(4) Improvement does not always follow when characteristic reactions are obtained.

(5) The beneficial results in Thrombo-angiitis obliterans are not sufficiently lasting to warrant the procedure in this disease.

(6) Selected cases of arteriosclerotic gangrene may derive sufficient benefit from the operation to make it worth while.

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LIGHT, SIGHT AND SAFETY

Faulty lighting and poor eyesight "are today the major factors in one out of every eight accidents," it is asserted by R. E. Simpson, engineer of the Travelers Insurance Company, Hartford, Conn., in a report to the Eye Sight Conservation Council of America, which is carrying on a nation-wide campaign for better vision in education and industry. Fully 66 per cent. of American workers have defects of vision, according to the report.

In pre-historic times, Mr. Simpson points out, the safety of both man and beast depended upon acuteness of vision. The only natural agent producing glare was the sun, but with the introduction of gas and electricity as illuminating agents the eye has been forced to contend with new perils.

"Accidents do not simply happen more or less haphazardly, but are caused—there is an underlying reason back of every accident," the report continues. "There is indisputable evidence that the momentary and temporary blindness caused by workmen having unshaded lamps close to their eyes and in the direct line of their vision is directly responsible for many industrial accidents. There is also evidence of accidents because of this same kind of blindness due to the specular reflection—more commonly known as glare—from brightly polished material within the range of vision. These and many other evils of illumination prevalent a decade ago were reflected in the accident rate to the extent of being decidedly contributing factors in one out of every four accidents."

NEW ENGLAND BRANCH OF THE AMERICAN UROLOGICAL ASSOCIATION

The forty-third meeting of the New England Branch of the American Urological Association was held at the Harvard Club, Boston, on March 25, 1924.

There was no new business, and no proposals for membership.

It was moved, seconded and voted that the minutes of the last meeting be not read.

Doctors O'Neil, Phelps, Chamberlain and E. G. Crabtree presented short discussions on unusual cases. Dr. W. W. Townsend presented a sample of wax paper catchbasin for cystoscopy tables and urological treatments which he had devised and was using in his office work.

Dr. W. W. Townsend then presented a paper entitled, "A Problem in Renal Tuberculosis."

The paper was discussed by Drs. O'Neil, Barney and Keefe, and Dr. Townsend closing.

Meeting adjourned.

E. Granville Crabtree,
Secretary

N. E. UROLOGICAL SOCIETY MEETING, BOSTON, MARCH 25, 1924

PRESENTATION OF SPECIMENS AND INSTRUMENTS

Dr. R. F. O'Neil. Case of Urethral Calculus

This calculus was removed from the posterior urethra by perineal section. The patient had a tight stricture of long standing. He had been in the habit of passing a filliform bougie and urinating around it. The grating of the stone could be felt with a soft instrument. It must have been present for a long time. It is 1½ inches long and pointed at each end. It was located immediately posterior to the stricture. Recovery was uneventful.

Dr. R. F. O'Neil. Two cases of Renal Tuberculosis

These two cases are of interest as showing how little dependence can be placed upon the amount of pus found in ureter catheter specimens as an indication of the extent of the process in the kidney. This kidney was removed five days ago. The urine from this side showed from 10 to 20 pus cells per high power field and many tubercle bacilli. That from the other side was normal in every respect.

On section the kidney shows extensive tuberculosis, with this yellowish fatty looking change in the pelvis and a cavity connecting with a lower calyx.

The second case was operated on ten days ago. The urine from the infected kidney showed only from 4 to 5 pus cells to the high power field, and tubercle bacilli. At operation the kidney was found obviously diseased, there being an extensive process in the lower pole, but which had not ruptured into the renal pelvis.

Undoubtedly some of the cases in which the remaining kidney becomes infected soon after nephrectomy are due to a focus which has not declared itself.

Dr. O. D. Phelps: I wish to show plates of a patient with double nephrolithiasis. Four months ago, this boy was operated upon and an attempt was made to relieve the left side. The attempt was nearly successful. Two fragments were left, as you see in this plate.

He presented himself again recently, which is four months from his first operation, and the left side has now evidently caught up to the right, and he is about where he was before any surgery was attempted.

This shows the left and the right (showing plates).

This left side was operated upon by pyelotomy and all removed but two fragments which you see here. The stone on the right side is still present, unchanged as far as we can see and not as yet operated upon. This case presents a recurrence in four months of calculi on the left side to such an extent that they are practically the same size as they were before the first operation and the right side is still unrelieved.

I am desirous of an opinion as to what is the proper method of procedure in this case. He is apparently a healthy young man of twenty-eight. The kidney function has not been done at this last sitting. Previously, it was normal. In the meantime he has been working. We have every reason to believe as far as inspection is concerned that he is in fair shape for further operative procedures if it is advisable to undertake them.

Dr. Chamberlain: I have a calculus to show removed from the bladder of a boy 19 years old. It is of interest because it is fairly large and because symptoms began only four months ago. There were areas of calcification in the right kidney. There is the x-ray plate (showing plate) which shows the calculus in the bladder.

Dr. E. G. Crabtree: Solitary cyst of the kidney is not of common occurrence. For this reason, I am presenting the two cases of this condition which I have encountered within the year. The first was resected leaving the kidney in place; the other was a renal curiosity which necessitated nephrectomy.

The first case occurred in a man of 55 years of age whose symptoms were those of stone, and the first lead given us that the kidney was abnormal came from the shape of the kidney shadow. The plates showed a stone in the kidney and a shadow in the course of the ureter. When pyelogram was done, the lower calyx was deformed and the kidney pelvis occupied only the upper half of the kidney shadow. From the pyelogram evidence, it was impossible to differentiate between tumor of the kidney arising from the lower pole, and a solitary cyst. At operation a cyst about 3½ inches in diameter with thin transparent walls filled with amber fluid was found. The lower pole of the kidney was split off by the cyst which penetrated through the cortical substance but did not communicate with the calyx. When the cyst was opened, the dilated calyx could be seen at the bottom of the depression. Only a thin layer of tissue seemed to separate the cyst from the calyx. I did resection of the cyst, removing a portion of the lower pole of the kidney. Ureterotomy was also done to remove the stone from the ureter. The patient made an uneventful convalescence. The wound was healed solidly at the end of 10 days and the urine remained uninfected.

FIG. I. X-rays of the kidneys and ureters with radiograph catheters in place, showing the catheter entering the upper portion of the kidney shadow and showing the location of calculi.

The second case occurred in a woman of 53 years of age. The presenting symptom was persistent pyelitis. By X-Ray a pyelogram diagnosis of stone in the kidney and an undeveloped kidney with bifid pelvis was demonstrated. Stone was in the upper half of the double kidney. At operation a small kidney was found about 3 inches in length. The upper half of the double kidney seemed normal save for the stone in the pelvis and an aberrant artery entering the upper pole, as shown in the drawing. The lower half of the double kidney was contracted, the surface was rough, and the pelvis markedly thickened. The pathologist's diagnosis of this portion of the kidney was atrophic pyelonephritis. Connected with the lower pole of the lower half of the kidney was a cyst about a half inch in diameter, thin walled, containing clear amber colored fluid in spite of the fact that the pelvis of this kidney was infected and the kidney showed atrophic pyelonephritis. In addition, there was an aberrant artery crossing the ureter and entering the lower half of the kidney. Nephrectomy was done, and the patient made an uneventful convalescence.

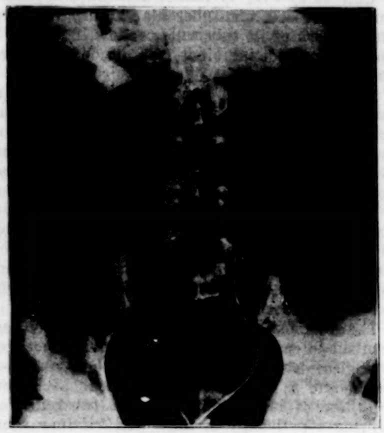

FIG. II. Pyelogram showing deformity of the lower calyx of the kidney. The extension of the kidney shadow below the area of the pelvis is indicated in the plate.

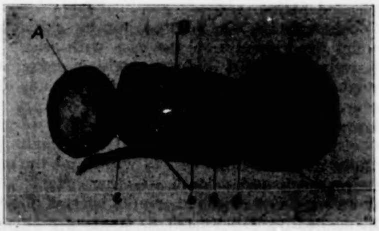

FIG. III. Drawing from specimen removed at operation from Case II.

A—Solitary cyst of lower pole.
B—Lower half of double kidney showing atrophic pyelonephritis.
C—Upper half of double kidney showing normal tissue.
a—Common ureter.
b—Bifurcate pelvis of lower half of double kidney.
c—Aberrant artery anterior to pelvis.
d—Stone in pelvis of upper half of kidney.
e—Aberrant artery to upper pole of kidney.

A PROBLEM IN RENAL TUBERCULOSIS

BY WM. WARREN TOWNSEND, M. D., BURLINGTON, VERMONT

CAN we by surgery render assistance to a definitely diseased, non-tubercular kidney to carry on the work of its tubercular fellow if removed, and delay if not inhibit it from becoming tubercular?

From a urological viewpoint we can offer a rather fair prognosis in primary unilateral renal tuberculosis by early nephrectomy, however in cases treated expectantly the prognosis is poor as regards involvement of the other kidney especially if it be bacteriologically receptive.

Watson and Cunningham in analyzing the statistics of two hundred and ninety-two cases showed that fifty-four per cent were cured, nineteen per cent died during convalescence, and thirty-six per cent showed great improvement, however could not be classed as cured.

The diagnosis of early renal tuberculosis has been made easy to those familiar with modern urological technique. The cases that must be considered as tubercular, urological problems are those of late unilateral renal tuberculosis. showing a pathology of the "well" kidney that may be classified as pre-tubercular, a kidney which is overworking to eliminate a part of its diseased mate's load, such overwork producing a congestive condition, which in these ordinarily lean subjects produces definitely palpable kidneys if not ptosed ones with urine coming from them that presents microscopical evidence of an acute or sub-acute toxic nephritis induced by the non-resistive kidney tissue to the blood born bacteria and toxins.

Years ago Brewer pointed out by extensive animal experimentation the ease with which a passively congested kidney might become infected. In the presence of the conditions as described and found on the well side we are at once confronted with the question "If we remove the tubercular kidney, will the remaining cripple act sufficiently well to withstand the operative shock and sustain life thereafter?" or "if we wait and treat the cripple by rest in bed and medically, will we not be inviting a tubercular process to begin in it?"

Full well realizing that in this New England of ours summer does not come with the first swallow we are loathe by the same token to form any conclusion from the two cases treated by us, one case five years ago and another discharged from the Hospital four weeks ago. We are in hopes however that we may be honored with a discussion that will stimulate further study or that like the Arabs we will fold our tents, etc.

When confronted five years ago with the case of Miss R. referred by her family physician for a cystitis and hematuria, which had been periodically persistent for six months and commenced shortly after her discharge from the Vermont Hospital for tuberculosis where she had been under treatment for phthisis pulmonalis and discharged as an arrested case. In brief, urological examination showed cystoscopic evidence of left renal tuberculosis. The right ureteral opening was normal in contour and appearance. The right kidney urine showed blood, a few pus cells, tube casts and three per cent albumin by bulk. Phthalin appearance after intravenous injection was eight minutes. A quantitative estimation was not made as we did not wish to leave a ureteral catheter in any longer than necessary. Animal inoculation made with the sediment from the right kidney proved to be negative—the animal living out his Laboratory expectancy and when autopsied showed no evidence of tuberculosis, whereas the animal inoculated with the sediment from the left kidney urine when autopsied showed peritoneal tuberculosis. By physical examination the right kidney was definitely palpable, tender, low-lying and movable. Miss R. weighed but 105 pounds so it was with little difficulty the above physical condition was made out.

The problem from the above findings was what course to pursue? To reiterate, the case was that of a young woman with arrested pulmonary tuberculosis, having a definitely tuberculous left kidney, a right that was ptosed, diseased and as we believe pre-tubercular and would soon become frankly tubercular. The bladder was diffusely inflamed with a moderate amount of disintegrated mucosa and edema around the left ureteral opening, which undoubtedly produced the frequency in urination that existed. Hence the problem, "Would we not by removing the left kidney be subjecting her to a severe operative hazard when the right kidney was so obviously diseased?" We decided to treat the right kidney surgically to get it to function better, if possible, before removing the tubercular kidney. This was done and the result was most gratifying. The young woman made an uninterrupted convalescence and has been feeling so well that she has repeatedly refused to allow us to remove the tubercular kidney, and when examined a year ago to ascertain her renal status she possessed a normal functioning and secreting right kidney and a tubercular left kidney.

Case No. 2 parallels No. 1 in that she, too, was a graduate of our State Hospital for tuberculosis, and two years ago we diagnosed a bleeding left renal tuberculosis and a normal functioning right kidney. We recommended at that time nephrectomy which was refused by her. On November 23, 1923, she returned complaining of more frequency and bleeding, and at that time examination showed no blood from tubercular side but bloody urine from the right with an albumin content of five per cent. Smear examination and guinea-pig inoculation showed no Laboratory evidence of tuberculosis. Phthalin time of appearance was fourteen minutes. The kidney, as in Case No. 1, was palpable and freely movable. Upon her return to the Hospital, January 22, 1924, we suggested the same operative procedure, as was done in Case No. 1, which was accepted. The time is too short to determine definitely what the ultimate result will be, but two days before her discharge from the Hospital the urine from the right kidney was practically normal and her phthalin time of appearance was five minutes.

In the cases thus cited we decapsulated and mobilized the right kidney in each instance. Renal decapsulation as reported by Reginald Harrison in 1896 was done by him to relieve nephralgia and hematuria and without pre-operative diagnosis. Calculus and pyelitis being suspected; these cases completely recovered.

Israel operated on fourteen cases: Two died of double nephritis, six completely recovered, three recurred after a prolonged interval and two were complete failures. In Israel's cases he did a nephrotomy in addition to decapsulation and made no claim to have cured chronic nephritis. He believed the relief of symptoms was due to a lessening of intra-renal pressure which interfered with or suppressed the blood circulation and urinary secretion.

That we may refresh our memory on renal decapsulation as introduced and advocated by Edebohls in this country I quote from the last edition of Morton's "Genito-Urinary Diseases and Syphilis."

Edebohls, of New York, was the first surgeon to operate on cases which had been diagnosed as chronic Bright's disease, with the object of curing that condition by operation. While in England, France and Germany surgical measures were undertaken for the relief of renal hematuria and pain, or of desperate cases of uremic poisoning, in this country Edebohls conceived the idea from his work in anchoring movable kidneys, and observing the improvement which occurred in the accompanying nephritis. His next step was to operate primarily for the cure of nephritis in cases where the kidney was not movable, by stripping off the capsule of the kidney instead of merely doing nephrotomy, as has been the practice of the European surgeons.

As to the modus operandi by which renal decapsulation exerts a favorable influence on chronic Bright's disease, Edebohls believes that by removing the impervious capsule of the kidney an opportunity is created for the formation of new vascular connections between the blood vessels supplying the secreting structures of the kidney, on one hand, and the blood vessels surrounding the kidney, on the other. This writer made his first observations on three cases that had been operated on for nephropexy. He noted that the strong connective-tissue adhesions or bands, attaching the kidney to its surroundings, contained large and numerous blood vessels running between the kidney and its adjacent tissues.

The newly formed arteries predominated in size over the veins, and in all the arteries the direction of the blood stream was toward the kidneys.

Edebohls believes that the increased blood supply leads to an absorption of the interstitial or intertubular exudates, freeing the tubules from compression and promoting a re-establishment of the normal circulation, with regeneration of epithelium capable of carrying on the secreting function.

The views of pathologists are strongly opposed to these explanations.

Van Cott and Murray, in their experiments on dogs in the Hoagland Laboratory, found that after stripping the capsule, a new, thick capsule was formed, with capillary and not arterial anastomoses. They also state that the elaborate researches of Marchand, Barth, and others prove undoubtedly that where extensive destruction of the renal tissue occurs repair is imperfect, and never to the degree of a restoration of functional activity.

Johnson also found, in his experiments on dogs, that the new capsule which formed was thicker than the original one, and without anastomoses between the renal and perirenal vessels. It is thus evident that clinicians and laboratory workers are at variance in explaining the anatomic basis of improvement after decapsulation.

Pel, Jaboulay, and others have suggested that the improvement comes more from the reaction of the operation upon the sympathetic ganglia, rather than from the increased blood supply to the part.

The first beneficial effects of the operation do not appear before the tenth day, and are explained by Edebohls as probably due to the manipulation of the kidney during the operation, which acts as a massage and stimulates the natural blood supply. He also states "that the new capsule forms in from three weeks to three months after stripping, that it is sometimes ~~thicker and sometimes~~ thinner, but always more succulent and vascular than the original."

From the above quotation it would seem that the reason for the improvement in the case of nephritis operated upon by Edebohls and those reported by Lloyd and others cannot be explained by scientific animal research, and that the benefit derived in these cases was due to the lessening of intra-renal pressure and not to a regeneration of vascular or secretory renal tissue.

In reviewing available literature we can find no report of a single kidney being operated upon for acute or chronic nephritis by decapsulation and fixation.

In conclusion we claim that in the two cases operated upon by renal decapsulation and fixation for hematuria and other evidence of acute nephritis improvement was shown. In Case No. 1, one year ago, examination of the urine from the kidney operated upon indicated no disease of the kidney. In Case No. 2, two days before discharge from the Hospital there was no evidence of blood or other morphological elements in the urine from the kidney operated upon. What the future in Case No. 2 will be remains to be seen.

It is suggestive that owing to the lack of internal and external fat in both of these subjects the kidneys were palpable and dependent, and it is not beyond the realm of possibility that by such looseness and dependency that their pedicles might have become kinked and a passive congestion occasioned thereby. We claim nothing new, simply the application of decapsulation and fixation when indicated in the "well" kidney to prepare it to carry the extra load and withstand the operative shock when its obviously tubercular fellow is to be removed.

DISCUSSION

Dr. J. H. Cunningham: In listening to Dr. Townsend's communication, I have wondered whether or not his idea in carrying out this procedure, which is so far as I know an innovation, was suggested by the recent publications appearing in the British literature, regarding the improvement of renal function by decapsulation and fixation, especially in cases of movable kidneys.

As you may know, the recent publications of Bell, Southam, and the works of Fullerton, Suckling, and Billington, give support to the contention that decapsulation and fixation in kidneys with abnormal mobility, produces an improvement in the kidney circulation, which they contend is impaired by the dragging of the organ upon the renal pedicle.

Moreover, the group of neurasthenic symptoms commonly associated with movable kidney and unquestionably exerting an influence on the individual's well-being, are relieved by removing the drag on the renal plexus, which they contend has a detrimental influence on the sympathetic nervous system, and through which they explain the long train of neurasthenic symptoms largely present in patients with ptosed kidneys. It would seem, from Dr. Townsend's report, that in the absence of any other explanation, that the improvement obtained might be through improved circulation and relief of sympathetic nervous system disturbances, as contended by the previously mentioned observers.

While the enthusiasm created by Edibolds many years ago has subsided in this country there has developed since that time methods of investigation in regard to renal function and allied laboratory tests, particularly blood chemistry, which permit a more precise appreciation of what kidney decapsulation and fixation may produce.

It would seem, from the careful work of these English observers, that this subject is again to be opened up for further consideration, and it may be that the beneficial results which Dr. Townsend has unquestionably shown, may be another example to be added to the many recorded in England. Certainly he is to be congratulated on the results obtained in his patients, and the procedure which he has carried out offers suggestion well worth considering.

Dr. Barney: I have decapsulated one or two cases of so-called acute nephritis with apparently good results. I felt uncertain later whether or not the results would have come about if expectant measures had been taken.

As regards chronic nephritis—I never tried it except in one case of persistent hematuria where the hematuria did cease. But I don't think it cured the nephritis because I think that results have shown that chronic nephritis of that type is always bilateral, and decapsulation will give only temporary relief and no permanent results.

Dr. R. F. O'Neil: Dr. Townsend's paper is very interesting and suggestive. I personally have not seen any cases such as he describes and do not believe that I would have the nerve to operate in them if I did. Anaesthesia is not good for these patients and it seems to me valuable time might be lost. I wonder if rest in bed and abdominal support would not accomplish the same result. Surely the results in Dr. Townsend's two cases are excellent so far, but after all, cure of renal tuberculosis consists of nephrectomy, and in some cases nature practically does this by the slow process of caseation and destruction of the kidney—auto-nephrectomy, and it seems to me that is what is happening, or has happened, in one of Dr. Townsend's cases, rather than to ascribe the result to decapsulation of the well kidney. We are all familiar with the so-called toxic, tuberculous nephritis described by Albarran, which occurs in the sound kidney and tends to recover after removal of the diseased mate. This is shown by albumin and occasionally casts, but I do not remember having seen a frank haematuria.

The subject brings up the question of immunization which was discussed when vaccines were so much in vogue and it is an attractive theory to attempt to raise the patient's resistance. Certain cases of early renal tuberculosis in young people do badly after nephrectomy, because, I think, they lack this resistance, whereas, in the long-standing and more extensive lesions the patients have had time to develop a certain amount of resistance and immunity.

I wish to thank Dr. Townsend for his interesting and original paper.

Dr. J. W. Keefe: The works of Edebohls created quite a furore in this country at the time he was doing so much work along that line so that surgeons in all parts of the country were performing decapsulations of the kidney not only in acute cases but in the chronic cases of Bright's; and as usual, we had favorable reports, but it seemed to me that ultimately the consensus of opinion was that it wasn't of any particular value in chronic nephritis and of very little value in acute nephritis.

I operated upon a few cases, by decapsulation of the kidney; and it seemed to me that in those cases of ptosed kidneys, there were altogether too many of decapsulation and fixation, and so again that operation fell into comparative disuse, though I believe there are cases of ptosis of the kidney, marked ptosis, where it is a valuable procedure. I have in mind now, a nurse who some eight years ago was compelled to give up her work on account of a ptosis of the kidney which could be readily palpated just above the anterior spine of the ilium. In her case I decapsulated and fixed the kidney, and it is only recently, within a month, that I heard of this nurse, and during all this period she has been able to carry on her work. Judging by that case and others I am convinced that the operation has been of distinct value.

Dr. Townsend's case is the first instance I have heard of where the operation was done for the sake of making a comparatively normal kidney improve its function; though in one of the cases reported the doctor said he did have blood coming from that kidney and pus, this is the first instance I have known of where the operation has been done to improve that function of the kidney, with the idea of removing its tuberculous fellow. From the fact that the case has done so well during five years it would seem to me that it is of distinct value, and as our Chairman has suggested, it may be that this operation of decapsulation of the kidney and fixation may again come into its own.

Dr. Jones: I would like to ask Dr. Townsend if he suggests this treatment on a perfectly normal kidney. As I understood his report of these cases, the right kidney wasn't a normal kidney and you did that to help that out.

Dr. Townsend: I expressed it as a "relatively well kidney."

Dr. Jones: But you wouln't do it on a normal kidney?

Dr. Townsend: No.

Dr. Townsend: I think the pathology was a toxic nephritis only. Both of these cases presented themselves with a hematuria on that side and an albumin content over and above what would be expected from the blood, and tubules, casts and evidence of nephritis.

Dr. Townsend: It didn't prove out to be a tuberculous nephritis. I just took this as an overloaded kidney, not a tuberculous kidney.

Dr. Cunningham: It is entirely a new suggestion to me. Anything to improve a kidney is worth trying; and if this procedure is taken up along that line, we will get some data which will be of some value. I think most of us would need some courage to do these preliminary improvement operations unless we have indications. If we could say that hematuria was due to a derangement of the circulation, I think we could all go ahead and do this thing with a great deal of expectancy of help.

Did either of these women present ptosis of the kidney?

Dr. Townsend: Both of them did.

Dr. Townsend: In reply to your question I was going to say that that was my primary object. My object was to decongest those kidneys by elevating them. They were both palpable way down.

Dr. Cunningham: I was impressed by the writings of the English on this subject of the improvement in the kidneys in cases of ptosis.

Dr. W. W. Townsend (closing): I have answered these interrogatories out of order. I want to say that the kidneys which it has been my fortune or misfortune to see in Vermont are the ones which are far along. Tuberculous kidneys are not recognized and sent to us for examination until they are well advanced. I happened to conceive of the idea of treating these patients in the manner in which I did following a conversation which I had with Dr. Sam Lloyd in New York a year before seeing these cases, and we discussed Edebohl's treatment by decapsulation. At the time Edebohls was operating in the Post-Graduate Hospital Dr. Lloyd did a great deal of work with him in decapsulating kidneys, and he told me there was something to this in relieving the intrarenal pressure and believed that these kidneys, as I have already stated to you, were ptosed and congested and that there was a perfectly obvious hematuria from the normal kidney. I was reluctant to attack the left kidney with a deficient function on the right side. I have always felt as our Chairman feels, just because a kidney is down, because a kidney is loose and movable and presents no symptoms, it isn't a kidney to be attacked by operation.

Within the last week or ten days I have had an experience which is rather suggestive—a woman came to me with a pain in her right costo-vertebral angle, extending way across the front. It would seem that you could feel the kidney—she was a full bellied woman—and it was hard to palpate her kidney, and every once in a while you would think you would get it.

Cystoscopy gave us no definite pelvic retention. There was nothing to lead you to suspect that she had any pelvic retention, but every time she came down to see me and I catheterized her ureters, she would be better. We didn't do a pyelogram. That was two years ago. The next I heard from her was a letter handed to me from an attending physician in New York in which he said that this woman had gone down to the hospital at the instigation of her nephew and that he had examined her very closely, cystoscoped her and did a pyelogram and that she had a perfectly negative kidney, and he did not believe any of her symptoms were due to her kidney. I felt all along that they were, because she would get relief from catheterization. He suggested colonic flushings. She went through all last summer having these colonic flushings. About four weeks ago I was told that this woman had re-entered the hospital and wanted to see me. I saw her, and she told me that she wanted to have her kidney drained again. I said "Why?" and she said she had been having these colonic flushings and was no better. We cystoscoped her and found the same condition. She had a perfectly normal urine—no hydronephrosis, no growth by culture. We took her downstairs and did not inject her because she had a reaction following her last pyelogram. We took an x-ray of her kidney without any injection of the pelvis. It showed a low-lying shadow and a large shadow. I got in correspondence with the interne in this hospital who was working under the gentleman I have referred to and asked him to send me the pyelogram which was taken in New York to compare with the one I had. He wrote me and said that the pyelogram had been mislaid and they couldn't find it. I presented the facts to her and told her that there was nothing I could do unless I did a pyelogram. So last week I did a pyelogram which showed the kidney way down with a definite kink at the junction of the ureter and pelvis. She asked me what to do. I told her that her pain and all her symptoms were due to the low-lying kidney but that I was reluctant to do anything without sending the film on to New York, asking his opinion. Yesterday I received a letter from him, and he said he was frank to admit that he would have to change his position and that the ureter showed a definite kink and that the only thing that would help the woman would be a nephropexy. So that bears out what you say about ptosed and movable kidneys.

In these cases both of them I believe had a perfectly definite pathology in the right kidney, and if we had done a nephrectomy, the right kidney would not have sustained the shock. The woman we operated upon five years ago won't let us do anything because she is apparently well; and the other woman is entirely too early to express any opinion in regard to her.

Dr. Cunningham: I think we have heard a real thing tonight. I hope all the members will have this in mind in future cases. It is certainly well worth thinking about.

Motion to adjourn made, seconded, carried.

THE THERAPEUTIC VALUE OF CHARCOAL IN FLATULENCE AND ERUCTATION[*]

BY MORRIS L. BOWMAN, M. D.

CHARCOAL, as a therapeutic agent in the treatment of flatulence and eructation, has, like so many substances, been by turns highly advocated and sharply condemned as useless. While some of the earliest medical writers advocated its use, we find modern authorities on disease and pathological conditions of the stomach and intestines either making no mention of charcoal as a therapeutic agent, or briefly referring to it as of no value.

Thus, over sixty-five years ago, James Bird[1] of London published a little book in which he said,

> "Flatulent eructations are among the first disturbing symptoms when the stomach is out of order, symptoms that increase in intensity as the disorder advances, until they become utterly uncontrollable when the disease is at its height. Search the entire Materia Medica, and no medicine contained in it is so well calculated (as vegetable charcoal) to combat these difficulties. Charcoal absorbs the gases evolved by the food when imperfectly digested, and corrects their foetor; it assists its decomposition, softening it and rendering it more soluble, and consequently far better fitted for the purposes of nutrition; it frees the nutrient principles from all noxious or irritating gaseous matters, and thus contributes healthy chyle to renew and renovate the blood, and by promoting digestion and preventing flatus from overdistending the stomach, it affords a weak stomach every opportunity of recovering a healthy tone and action."

Wild[2], in writing in 1896 on "Charcoal as a Therapeutic Agent," says that since the publication of James Bird's book, little, if any, addition has been made to our knowledge of the more strictly medicinal properties of charcoal. He quotes from Lauder Brunton the statement that charcoal "oxidizes and decomposes sulphuretted hydrogen very readily, and also quickly oxidizes and destroys decomposing organic substances. It thus acts as a deodorizer and disinfectant. It only possesses this power, however, when it is dry, and loses it when it is wet.'' And in another place Brunton says, ''It has been supposed to relieve flatulence by absorbing the gases in the stomach and intestines, but as it will become wet by the juices of the intestinal canal after it has been swallowed, it is much more probable that it acts mechanically, by removing mucous, or by stimulating the circulation and peristaltic movements in the walls of the stomach and intestines.''

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[*] From the Medical Services of the Massachusetts General Hospital. Conducted under the direction of Dr. J. H. Means.

But Aaron[3] in his recent (1921) book on ''Diseases of the Digestive Organs'' says,

''An important place was formerly held by medication in the treatment of flatulence. Great virtue was ascribed to the various teas (valerian. peppermint, caraway, fennel), and to wood charcoal (carbo ligni). At present we are in a position to deny that these products possess any curative properties whatever. Particularly of wood charcoal we know that it is able to exert its antiseptic and absorbing powers only when dry.''

Notwithstanding this diversity of opinion, the results of charcoal experimentation carried on during the Great War, together with the finding, by such observers as Joachimoglu[4] and de Houssay[5], of its power of detoxication, lead us to feel that the whole story cannot be summed up either in Brunton's ''mechanical removal of mucous, and stimulation of the circulating,'' or Aaron's flat denial of its efficiency.

Dr. Cecil K. Drinker used kelp charcoal with success in one case of flatulence, and, at his suggestion, it was administered to a small series of selected cases at the Massachusetts General Hospital. An aqueous suspension of charcoal was used throughout.

Daily records were kept both from a subjective and an objective point of view. Such records, however, are subject to correction for the personal equation of both patient and observer. This factor was kept in mind, and discounted where possible.

The nine patients who comprised this series were as follows:

Cardiac Disease	4
Typhoid Fever	1
Ptosis and Constipation	1
Chronic Gall Bladder	1
Chronic Duodenal Ulcer	1
Effort Syndrome	1

All were in discomfort because of eructation, flatulence, or both.

Observations were made upon the patient's statement of relief of the symptoms, upon daily percussion, and upon actual measurements of the abdomen.

In the nine cases investigated it seemed that the administration of kelp charcoal definitely relieved the discomfort due to gastro-intestinal gas. The patients with abdominal distension were more relieved than those complaining chiefly of eructation. Those complaining of eructation alone were observed to be air swallowers in all but one instance, and that patient was relieved. The charcoal was in equilibrium with air before administration, so could be expected to have little effect on swallowed air.

We must consider suggestion as a possible cause for some, at least, of the results obtained. It was explained to the patients what results were hoped for, and their coöperation was requested. This psychological element no doubt played some part.

With this series as a starting point, certain laboratory experiments were determined upon, and carried out, to ascertain the action of kelp charcoal in a fluid medium.

1. *Gas Production by B. Coli in Dextrose Broth in the Presence of Kelp Charcoal, as Compared with Gas Production of B. Coli in Dextrose Broth Alone.*

Method: Fermentation tubes of known capacity were used. The incubation period was 20 hours and the temperature 37°C. The PH of the media = 7.7. In the tubes charged with charcoal ʒss of sterilized kelp charcoal was used. Each tube was inoculated with one standard loopful of a 20-hour broth culture of B. Coli.

CULTURES

Series	In the Presence of Charcoal	In Broth Alone	Hours Incubated
	C.C. of Gas Produced	C.C. of Gas Produced	
1	11.0	6.5	20
2	12.0	10.0	20
3	9.0	7.0	20
4	11.0	7.5	20
5	10.5	9.5	48
Average	10.8	8.1	

II. *Gas Production in Dextrose Broth with and without kelp Charcoal inoculated with one Standard Loop of Emulsified Stool of a Patient with Abdominal Distension* (*Shipley*).

CULTURES

Series	In the Presence of Charcoal	In Broth Alone	Hours Incubated
	C.C. of Gas Produced	C.C. of Gas Produced	
1	9.0	8.0	20
2	10.0	8.0	20
3	7.5	5.5	16
4	9.5	7.0	20
5	11.5	8.5	20
Average	9.5	7.4	

III. *Experiment I Repeated plus Agitation of Media during Incubation Period.*

It was noted that the charcoal, at the end of the incubation period, had almost entirely settled to the bottom of the tubes. In order that the constant motion of the bowel, which would undoubtedly keep the charcoal in suspension, might be simulated, a tip-table, operated by water power was devised, and on this the media were kept agitated during the entire incubation period.

AGITATED CULTURES

Series	In the Presence of Charcoal C.C. of Gas Produced	In Broth Alone C.C. of Gas Produced	Hours Incubated
1	15.0	5.0	16
2	22.0	7.0	18
3	37.0	10.5	20
4	40.2	15.6	20
5	18.3	6.5	16
Average	26.5	8.8	

IV. *Two 24-hour-old Dextrose Broth Cultures of B. Coli were Centrifuged.*

To one charcoal was added, to ascertain its action as a precipitating agent for B. Coli. Both solutions were cloudy at the beginning of the test.

Cultures + Charcoal	Time Centrifuged	Pure Cultures
Cloudy	10 m.	Cloudy
Cloudy	20 m.	Cloudy
Cloudy	30 m.	Cloudy
Sl. Clear	40 m.	Sl. Clear
Sl. Cloudy	50 m.	Sl. Cloudy
Clear*	60 m.	Clear

*In all cases the charcoal was precipitated.

V. *Dextrose Broth Cultures of Three Days Growth with and without Charcoal were Centrifuged for One Hour.*

One cubic centimeter of the supernatant fluid was added to small fermentation tubes filled with sterile dextrose broth. There was no gas production in 30 minutes of incubation, either in the tubes charged with the supernatant fluid from the cultures grown with charcoal or in those grown without charcoal.

(See table under VI.)

VI. *All tubes in Experiment V showed equal gas production after 24 hours of incubation.*

GAS PRODUCED

Time Incubated	5 m.	10 m.	15 m.	20 m.	25 m.	30 m.	24 hrs.
Tube No. 1	0	0	0	0	0	0	10.5 c.c.
Tube No. 2	0	0	0	0	0	0	10.0 c.c.

No. 1 = Dextrose — supernatant fluid from Charcoal B. Coli culture.

No. 2 = Dextrose — supernatant fluid from B. Coli culture.

VII. *Wohlgemuth's Method of Amylolytic Activity.*

This method was used to determine the action of kelp charcoal on the enzyme.

Series "A." Into each of seven test tubes, 0.1 gm. of kelp charcoal and diminishing quantities of enzyme solution were placed. The tubes were suspended in an ice bath, and to each 5.0 c.c. of 1% soluble starch solution was added.

Series "B." Identically made up, but the charcoal was omitted.

Both sets of tubes were transferred to a water bath at 38°C for 45 minutes, then repacked in ice, diluted with sterile water within. 1.0 cm. of the top, and one drop of Tincture of Iodine added to each. The colors are noted below.

In this test: Blue = Unchanged Starch
Bluish Violet = Starch and Erythrodextrin
Yellow = Maltose

Pancreatin (Lilly), capable of converting 25 times its own weight of starch was used. The concentrations are noted below:

No.	Pancreatin Concentrations	Series "A" * Color Reading	Series "B" Color Reading
1	1.000%	Blue	Yellow
2	0.5%	Blue	Yellow
3	0.25%	Blue	Yellow
4	0.125%	Blue	Yellow
5	0.06%	Blue	Violet Red
6	0.03%	Blue	Violet Blue
7	0.015%	Blue	Blue

*Containing 0.1 gm. of charcoal in each tube.

SUMMARY OF THE EXPERIMENTAL WORK

1. It was found that kelp charcoal in dextrose broth accelerated the gas production of B. Coli. This action was found to occur when the culture was at rest, and also when in a state of constant agitation. In the latter case, the increase in gas production in the tubes containing charcoal was marked, in the proportion of 3:1 as compared with 5:4 in the unagitated tubes. It was shown that kelp charcoal does not absorb the gas produced by the growth of B. Coli.

2. It was found that kelp charcoal in dextrose broth accelerated gas production of the bacteria found in stools of patients suffering from abdominal distension. The proportions were similar to those above.

3. It was found that B. Coli has no affinity for kelp charcoal and that the charcoal does not hasten the precipitation of B. Coli.

4. It was found that the gas production of B. Coli is due to its own growth, and not to an exogenous substance produced by the organism and that kelp charcoal does not alter this condition.

5. It was found that kelp chorcoal inhibits the action of pancreatin on starch.

DISCUSSION

Clinically several observers have noted relief of abdominal distension or eructation, or both, on the administration of charcoal. In the short series noted in this paper, similar results seem to have been obtained. But from a laboratory point of view, it is found that kelp charcoal, in solution, does not absorb gas, that on the contrary it accelerates or increases its production.

These results are borne out by Labes[6] who has shown that substances of great surface density such as charcoal suspensions, colloidal silicic acid, ferrous phosphate, and agar-agar have a stimulating effect on the formation of gases of fermentation by B. Coli in protein free media.

It has also been demonstrated that kelp charcoal has no precipitating action on B. Coli, nor does it absorb any exogenous substance which can be supposed to produce gas apart from the organism itself.

On the other hand, it has been shown that the starch splitting property of pancreatin is inhibited by kelp charcoal. It has also been demonstrated[7] in experiments made with stomach juices in vitro with stomach contents, that blood charcoal absorbs HCl; and pepsin but to a lesser degree. From a laboratory point of view then, kelp charcoal stimulates gas production and inhibits the activity of the gastric ferments.

So much for the evidence, but as far as speculation goes, this cannot be the whole story. The one patient relieved of eructation suffered from gastric ulcer and hyperacidity. Charcoal absorbs HCl. The patients relieved of distension were, in each case, suffering from altered gastro-intestinal function, either because of impaired blood supply, as in the cardiac cases, or because of definite pathological changes as in the typhoid.

Gas is produced in normal bowel, but only rarely is there clinical distension. Since the gastro-intestinal function may then be considered abnormal, the seeming favorable results of the administration of kelp charcoal may be due to:

(a) The alteration of gastro-intestinal ferments (HCl, pepsin, pancreatic ferments, etc.) toward normal, if it may be conceived that they are abnormally active in stasis of the tract.

(b) Charcoal may irritate the sluggish tract to an extent sufficient to stimulate absorption or elimination of gas. This irritation may be mechanical, due to its rough physical character, or it may accelerate gas production to a point, causing rapid expansion of the gut, thus increasing its irritability.

(c) Stasis of the gut may lead to the piling up of toxic substances, thus inducing a vicious cycle. Charcoal has been demonstrated to absorb toxic substances. Kraus and Barbara[8] have shown absorption of bacterial toxins by charcoal both in vitro and in the organism. deHoussay[5] has shown the absorption of snake venom by charcoal. Joachimoglu[9] has shown the prevention of strychnine poisoning in the gastro-intestinal tract of dogs by various types of charcoal.

It is conceivable then, that charcoal may absorb toxic agents present in the abnormally functioning gut, and this removal be sufficient to allow the gut, to approach normal function and eliminate or absorb gas, and in this way reduce distension.

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ENURESIS OF TWENTY-EIGHT YEARS' DURATION, FOLLOWING INSTRUMENTAL DELIVERY

BY FREDERICK W. JOHNSON, M. D., F. A. C. S., BOSTON

This case is reported on account of the unusual method found necessary for its relief, and if it helps some one to give comfort and restore to happiness another most miserable sufferer I shall feel more than repaid.

Mrs. McL., fifty years of age, consulted me January, 1923. She was still menstruating regularly without pain, had no increase in the flow and no vaginal discharge. General health excellent.

Twenty-eight years ago was delivered by high forceps at her first confinement. Enuresis "immediately followed the delivery."

The late Doctor Maurice H. Richardson was obliged to operate five times in order to restore the urethra which had been "torn away from the bladder." His final result was, to all appearances, a perfect urethra and there was no leakage when the patient was lying down.

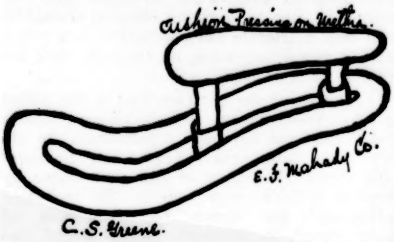
His death prevented further operation which he had planned.

Three years previous to my seeing her, a "fixation" of the uterus had been done with the idea of "giving the bladder more room," but the uterus did not stay up.

In January, 1923, I did a Howard A. Kelly operation for tightening the vesical neck, and there was no leakage for one month. Then she became as bad as ever on standing.

On looking the subject up I found a similar

case reported by Dr. Howard A. Kelly. I fitted my patient with an Albert Smith pessary and had a hard rubber cushion, which presses on the whole length of the urethra, attached as illustrated by Dr. Kelly in the report of his case.



The relief has been perfect. Not a drop of urine escapes.

Every five or six hours during the day the pessary is removed to allow the urine to run out of the bladder.

On going to bed the pessary is removed, thoroughly cleaned and a vaginal douche taken.

When the vault of the vagina fore-shortens following senile changes it will probably be necessary to cut off the posterior bar of the Albert Smith pessary and fasten a small round bulb on either end of the lateral bars.

MEDICAL PROGRESS

PROGRESS IN UROLOGY

BY HERBERT H. HOWARD, M. D., ASSISTANT VISITING SURGEON, BOSTON CITY HOSPITAL

JOHN R. CAULK and J. HOY SANFORD[1] describe in an article read before the New York Urological Society, an analytical study of one hundred cases of selected vesical neck obstructions operated upon by the Caulk Cautery Punch. They describe very completely four causes of the lesser grade obstructions at the internal vesical orifice.

The first type being the slight vesical ingrowths completely encircling the orifice, in no place allowing the orifice to be flush with the bladder wall.

The second class is the more pronounced, thickenings, plus the circular collar arrangement.

In the third class are grouped the cases where there is considerably more intravesical bulging with deeper clefts than those found in the second class and are the cases which may be termed the border line cases between major and minor surgery. They include in this class the lobular protrusions which occur at any area on the sphincter, commonly noted in patients who have had previous operations.

The fourth class comprises the dense scleroses which really are the old vesical neck contractures and very rarely have been shown to have glandular elements on section.

Of these one hundred cases, ninety were definite obstructions of the selected type in which they believe the cautery punch to be the type of operative procedure. They have not had any cases of incontinence following any operation with this instrument and they believe that the sphincter in all probability is never completely severed because the burn is not deep enough to interfere with sphincter control. The type of current that should be used is the alternating current and the current is run directly to a red heat when it is engaged and it requires only about four seconds to complete the operation and this rapidity lessens the chances of any cauterization of the surrounding tissues. They believe that the chief difficulty that has been encountered by other men using the instrument is due to the fact that a direct current is used and that proper care was not used in setting the instrument in the correct position. In the majority of cases, multiple pieces were removed at different sittings and were done usually for the collar obstruction with lobular involvement, removing one or two pieces at a time. They report but one case of hemorrhage, but they never have had a case of hemorrhage in a patient where the alternating current was used. The majority of cases had practically no discomfort after forty-eight hours and only a few showed evidence of a mild terminal hemorrhage. The average stay in the hospital was two days. The longest stay was two months.

Seven cases developed postoperative epididymitis, but only two were very acute. Postoperative chills in eight patients. These cases, however, had had chills prior to operation. The retention catheters were only used in about one-third of the cases. Two-thirds of their patients showed immediate improvement of the urinary stream within a week, the others improved in from two to four weeks. Four and four-tenths per cent showed no evidence of any improvement. Out of the twenty-five cases of the bar type obstruction, three showed residual urine after operation, but not over one-half an ounce. Twenty-six cases of the collar type of obstruction had only four showing any residual after operation. Fourteen cases of vesical neck contractures showed but three having residual urine and the average being only one-half an ounce. Of the remaining cases imperfect results were obtained on account of other existing pathological conditions.

Herman C. Bumpus, Jr.,[2] at the Mayo Clinic reports two cases of pyelonephritis treated with indwelling ureteral catheters. All cases of this type at the Mayo Clinic are first carefully studied for focal infections and if found are treated before any attempt is made to treat the kidney pelvis itself. In these cases of pyelonephritis it has been shown that there is first a dilatation of the minor calices, then of the pelvis and later the ureters, the dilatation being due to inflammatory changes in the renal parenchyma. These changes causing a diminution in the peristalsis resulting in delayed faulty drainage. To overcome this he inserts two ureteral catheters to the renal pelvis and the larger the catheter the more easily the treatment is carried on and if possible treatment can be carried out much better with No. 6 catheters than the smaller ones. After the catheters have both been carried up to the pelvis one is withdrawn 2 or 3 cm. to insure its being lower in the pelvis. The catheter that is highest is then attached to a reservoir, containing the irrigating solution and this reservoir is placed several feet above the patient and the solution allowed to run in at a rate which will not distend the renal pelvis. They continue this treatment for several hours each day using such solutions as 1:10,000 acriflavin or a 1 per cent solution of acid fuchsin. These patients were also given enough fluids by mouth so that the urine output was between 2500 and 3000 cc. daily. The catheters may be left in place just as long as they drain freely, but not more than five or six days.

Barringer and Dean[3] in an article read before the American Urological Association of Genito-urinary Surgeons in May, 1923, described thirty-six cases of epithelioma of the penis treated at the Memorial Hospital by a combination in some of the cases of radical amputation, radium and x-ray therapy. They believe that both the papillary and infiltrating carcinoma of the penis may be removed by radium, if the tunic covering the glans penis has not been penetrated. After penetration of the tunic surgical removal is indicated. Metastasis probably occurs by embolism through the lymph channels. The inguinal involvement by carcinoma occurring relatively late and in less than forty per cent of the cases.

They believe that the best results are obtained by conservative treatment of the inguinal nodes, with routine x-ray of all cases, withholding surgical removal until they are believed to be definitely carcinomatous and after removal proper radiation of the lymph channels.

H. G. Bugbee[4] reports nineteen cases of malignant growths of the bladder in which the various forms of treatment include fulguration, diathermy, and radium is used. He maintains that if the papillomatous type of growth does not respond at once to fulguration it is undoubtedly malignant and a cystotomy should be done without delay. If question of doubt, sections from the growth should be taken.

Extensive carcinoma of the bladder in which metastasis have taken place there should be some effort taken towards making the patient as comfortable as possible and this may be done by a simple cystotomy for permanent drainage. In cases of extensive carcinoma without metastasis, he has found it possible to destroy the growth by repeated insertions of radium needles at intervals, taking care of the sloughing and infection by adequate drainage and forced fluids. The circumscribed carcinoma should be removed by resection, if possible, and he has found that the recurrences after operation are much less resistant than the primary growth and sometimes yield to fulguration. He emphasized the fact that all of these cases should be very carefully followed after operation in order to detect early recurrences. He has found that where the radium needles were inserted into the bladder wall about the line of resection that the sloughs resulting sometimes remain for four months. This type of treatment seems to minimize the chances of local recurrence by destroying the stray cancer cells. The malignant type of papillomata should be first treated by resection and the line of resection walled off by the insertion of radium needles.

G. L. Hunner[5]: Ureteral Stricture. The author in the past few years has laid a great deal of stress on ureteral stricture in stone formation. Stones are found as a rule in two areas, namely, at a point 3 to 5 cm. below the pelvic brim, and from 2 to 5 cm. above the bladder and it is in these areas which strictures usually occur. Persons passing one or more ureteral stones he believes usually have ureteral stricture.

Blocking by stone is as a rule not absolute because the stone usually moves up and down in the ureter. Wax-tipped catheters may show the presence of calcareous particles and subsequent roentgenography and wax-tipped catheterization of the ureter may fail to show further evidence of stone.

Surgical treatment, he believes, should not be undertaken without a thorough investigation of both ureters for stricture and as bilateral stricture is usually present in such cases both ureters should be well dilated before the operation. This procedure, in many cases, will save the kidneys from recurring stones and save the second kidney from developing a second stone on the kidney primarily affected.

Bilateral stricture with symptoms of hydronephrosis or pyelitis on one side and an unsuspected aseptic stone on the symptomless side suggests a stone formation without preliminary urinary infection.

Patients who have not been subjected to operation for kidney stones showed marked improvement following ureteral drainage, in that the kidney function rapidly increases, purulent urine clears up and oftentimes the symptoms disappear in spite of the presence of stone.

C. H. Mayo, and W. Walters[6]: Transplantation of the Ureters into the Rectum. The end results of thirty-five cases of exstrophy of the bladder in which both ureters were transplanted into the rectum by C. H. Mayo is discussed, also the Mayo technique, which is practically the same as Coffey's principle of common-duct transplantation to the ureter. The right ureter is transplanted two weeks before the left. After transplantation of both ureters, the bladder is removed in a third operation whenever the patient's condition will permit it.

In twenty-eight cases both ureters were transplanted with one post-operative death. Twenty-three of the cases which they were able to follow up show that the patients were able to retain urine in the rectum on an average of from three to six hours, some even over night. Clinically these showed no evidence of renal infection, no pain in the kidney region, no headache, vertigo, nausea, or vomiting.

The first operation in this group was performed on a child seven years of age ten years ago, and the child's health at the present time is good.

Diverticulum of the Urinary Bladder. E. S. Judd, and A. J. Scholl[7]: This condition in the early cases was usually discovered accidentally and the complications arising from this condition were not carefully gone into. Mortality was high and operative results fair. The condition was due primarily to embryological defects in the bladder, either a weakening of the musculature, usually at the base of the bladder, or a definite hiatus. In most cases the actual distention and dilatation of the sac they found to be the result of obstruction at the bladder outlet.

The most common cause and the one which generally occurs in old men and produces dilatation of the sac, is obstruction at the neck due to either an enlarged prostrate, or to bladder neck contractions.

One hundred and thirty-three cases of this type treated at the Mayo Clinic were studied with the type of operation performed and the post-operative results. Of this number of cases one hundred thirty-one were in males. The condition occurs most commonly at the age of greatest frequency of prostatic hypertrophy. The most common location of the orifice is in the region of the urinary outlet.

The diverticula were completely excised in fifty cases with a mortality of six per cent. In thirty-seven cases the diverticulum was excised and prostatectomy performed, with the mortality of eight and one-tenth per cent. The diverticulum was not removed in forty-six of the cases. In five the ureter was involved in the diverticulum and in one case was transplanted into a healthy portion of the bladder.

Stones were found in twenty cases. In nine calculi were in the diverticulum, in eight they were found in the bladder and in three were in both.

The Operative Treatment of Vesical Diverticula. J. S. Joly[8]: In the operative treatment of vesical diverticula preliminary cystotomy is dangerous because the diverticular orifice becomes closed when the bladder contracts around the cystotomy tube and the diverticulum then suppurates because no amount of vesical irrigation will reach it. Therefore a preliminary cystotomy should be done only when the kidneys are so severely damaged that the patient cannot stand a primary excision. When in such a case the diverticulum is grossly infected the bladder should be opened and two small tubes should be placed in the diverticulum and a large tube in the bladder. The diverticulum may then be successfully irrigated.

Diverticula may be excised from within or from without the bladder, or by splitting the bladder wall. An excision from without the bladder is suited for diverticula situated high.

The intravesical operation is done by encircling the diverticular orifice by an incision through the entire bladder wall and removing the diverticulum by blunt dissection. This is suitable only for small diverticula.

In some cases the sac may be invaginated partly from within and partly from without. Young has invaginated diverticula by suction. When the sac is large and thin, the method of combined invagination and inversion is particularly effective, but when the sac is low down on the posterior wall of the bladder where the walls are thick and inelastic and when there is marked pericystitis this method is less successful.

Vesical diverticula have been frequently diagnosed as prostatic hypertrophy. When these conditions occur together they should be removed at one operation if this is possible without too great risk.

In case of stone and diverticulum both should be removed by open operation. When the stone is in the diverticulum the indication is even stronger.

The orifices of lateral diverticula are always found in a limited oval area above and to the outside of the ureteral orifice. Whenever the partition is split down between the bladder and the sac the incision should be curved forward sufficiently to miss the ureter.

The most common indications for operation for vesical diverticula are obstruction and infection.

As a rule the diagnosis is made by means of the cystoscope. If this is impossible, a cystogram made with 5 to 15 per cent sodium iodide will be satisfactory. The weakest solution that will give a sufficient shadow should be used.

The Relation of the Bowel to Bacillus Coli Kidney Infections. V. C. Davis, and E. C. McGill[9]: In this article a study of the route taken by colon bacilli and its passage from the bowel to the kidney in cases of pyelitis have been carefully gone into. The experimental work reviewed and reported shows that intestinal organisms pass through the normal as well as the pathological bowel wall to the mesenteric glands. Large numbers of actively growing colon bacilli were injected into the gastro-intestinal tract of the normal dog and caused only a small urinary reaction in the urinary tract. In dogs with distemper the reaction was more pronounced, and it is the authors' opinion that the organisms in these cases reached the kidney by way of the blood stream.

In dogs showing mild constipation or diarrhea, there was no increase in the absorption of the organisms in the mesenteric glands and no urinary infection.

In cases of complete obstruction of the bowel, however, or intestinal injury there was a marked increase in mesenteric gland absorption and urinary infection in one case.

There was no evidence that organisms absorbed in the mesenteric glands reached the kidney by the lymphatics. Such infection the author believes would be possible only when the diseased bowel or appendix is directly in contact with the peritoneum overlying the kidney.

The Results Obtained by Various Methods in the Treatment of Tumors of the Bladder. H. H. Young, and W. W. Scott[10]: Out of three hundred and eighty cases, eighty per cent of the bladder tumors were found to occur between the fortieth and sixty-ninth years of age. The papillomata and carcinomata are most frequent in the region of the trigone and ureteral orifices, the adjacent lateral walls of the bladder and the vesical neck. The anterior wall was found to be less frequently involved. The vertex and upper posterior wall less frequently attacked.

Resection was most easily done in the vertex, and the anterior, upper lateral, and posterior walls, and in these cases good results were expected from radical removal of a wide margin of the bladder wall. Good results were also obtained from resection at the base of the bladder and in the region of the ureters. In cases of involvement in the vesical neck and prostate deep cauterization was far more effective than excision.

Fulguration is usually the method of choice in the benign papilloma, but when the tumor is large, radium is of great assistance in causing its rapid disappearance. Because of the potential malignancy of all vesical papillomata, radium should generally be applied, if possible. In cases of malignant papillomata radium applied with an operative cystoscope and held firmly in position with a clamp fastened to the table is of first value and gives the best results. In these cases a combination of fulguration and radium is advisable.

If the tumor is definitely malignant or very extensive, and particularly when it is infiltrating, it should be attacked suprapubically. Care must be taken not to touch it or break off any papillary processes and alcohol or resorcin should be applied to destroy any cells that may have been dropped into the bladder or wound.

If possible, thorough resection with a wide area of healthy bladder wall should be done. In a few cases it has given remarkable results, but it was always associated with deep and wide cauterization. Fulguration, radium, electrocauterization and careful radical resection have transformed the situation so that today about ninety-five per cent of the benign and seventy-five per cent of the malignant papillomata, about fifty per cent of the papillary carcinomata, and about twenty-five per cent of the infiltrating carcinomata are probably curable by one or more of these methods.

Salivary Urea and the Mercury Combining Power of Saliva: A New and Simple Index of Renal Insufficiency. P. S. Hench[11]: It is known that urea is easily diffusible and therefore is distributed approximately equally in all the tissues of the body. Saliva was found to be a very available and useful indicator of urea retention, and in a previous communication Aldrich and Hench pointed out the intimate association between the concentration of urea nitrogen in the blood and the concentration of the combined urea and ammonia nitrogen in the saliva. They found that nearly all of the ammonia in the saliva comes from urea in the process of its breaking down by oral bacteria in the presence of the alkaline saliva. Therefore the ammonia should be considered part of the urea, and the combined amount of ammonia nitrogen and urea nitrogen should be considered as comparable with the blood urea nitrogen.

In the saliva of normal persons, from 6 to 13 mgm. of combined urea and ammonia nitrogen for each 100 c.cm. were found. This represents between 13 and 27 mgm. of urea for each 100 c.cm. Further observations have caused the author to consider from 6 to 16 mgm. of combined urea and ammonia nitrogen as the average amount for persons without urea retention, and this combined urea and ammonia nitrogen of the saliva closely approximates that of the urea nitrogen of the blood.

In cases of urea retention, the combined urea and ammonia nitrogen in the saliva always increases with an increase in the blood urea nitrogen.

The advantage of estimations of the salivary urea by the urease method is chiefly the availability of saliva. Blood is not always obtainable, especially in the cases of children and obese persons in whom venipuncture is difficult. The value of salivary urea determinations has become still greater with the finding of a more rapid and more simple method than the urease method. This consists of the estimation of the mercury-combining power of saliva.

In a series of approximately 1,000 determinations on the saliva obtained from approximately 500 persons whose blood-urea content varied from 12 to 325 mgm. for each 100 c.cm., it was noted that the mercury-combining power of saliva increased with an increase in the blood urea and salivary urea as determined by the urease method. Therefore the mercury-combining power of saliva may be used as an index of blood-urea concentration.

With two easily obtainable reagents the estimation of the mercury-combining power of saliva may be completed in five minutes. Thus a simple practical method is available whereby an index of the blood urea can be obtained by any practitioner, since it necessitates only the most simple apparatus.

Bichloride of mercury in excess in the presence of saturated sodium carbonate gives a reddish-brown precipitate, a mercuric oxychloride. Not until there is bichloride of mercury in excess is this precipitate obtained. A deepening canary-yellow color is noted before the first brownish-red tinge appears. The saliva has a definite power of combining with varying amounts of bichloride of mercury. The combination is between bichloride and certain nitrogenous salivary constituents, mainly urea. As urea represents by far the greater precentage of the combining nitrogenous substances, and as its avidity for bichloride is much greater than that of the other nitrogenous salivary constituents, the mercury-combining power of saliva is an index of the quantitative presence of urea, and the variations in this combining power depend almost entirely on the blood-urea concentration. Findings from experiments with standard solutions of urea, uric acid, etc., were in accord with the data obtained from the saliva in a series of normal persons and persons with urea retention.

The mouth is first washed out with half a glass of water and a small piece of paraffin may be used to stimulate salivary flow. Two specimens of about 8 c.cm. each are collected. This collection may be made in a very few minutes, and generally without any inconvenience to the patient. The first or preliminary specimen, which removes food particles or excess or epithelial debris, is discarded or used as a check on the second specimen, which is used for titration. The first and second specimens may show a slight difference in the combining power (usually a very slight increase in the first specimen, 0.1 to 0.3 c.cm. for each 5 c.cm. saliva).

Five cubic centimeters of saliva are measured into a flask by means of a graduated pipette and then titrated with a 5 per cent solution of mercuric chloride. For the latter, as a rule, a graduated 10-c.cm. pipette is sufficient. The addition of bichloride of mercury is continued until one drop of the mixture added to a drop of saturated sodium carbonate on a porcelain plate causes the prompt appearance of a definite reddish-brown tinge. Unless the brown color develops within about three seconds, this should not be considered the end point, and a drop or two more of the bichloride should be added. The result may be expressed in terms of the number of cubic centimeters of bichloride of mercury used to obtain this end point. For the sake of comparative uniformity, however, the results are reported in terms of cubic centimeters of bichloride of mercury for each 100 c.cm. of saliva. This value is called the "salivary urea index."

It is unnecessary to filter the specimens because the epithelial debris has a certain small mercury-combining power which practically compensates for the slight quantitative error in the bulk obtained by its presence. Unfiltered, filtered, and supernatant specimens of the same saliva give practically the same result.

For 100 c.cm. of saliva the combining power in normal persons is between 30 and 50 (that is, 30 to 50 c.cm. of a 5 per cent solution of bichloride of mercury). For 5 c.cm. of saliva it is between 1.5 and 2.5 (that is, 1.5 to 2.5 c.cm. of a 5 per cent solution of bichloride of mercury). The upper limit of this range is generally obtained in the presence of the upper limit of normal blood-urea concentration which was taken as 40 mgm. for each 100 c.cm. of blood. When retention occurs, the mercury combining power rises quantitatively, and at a blood-urea concentration of about 325 mgm. for each 100 c.cm. the mercury combining power is about 270 for each 100 c.cm. of saliva or 13.5 for each 5 c.cm. of saliva.

Cases in hospitals may be followed daily with occasional checks on the blood-urea. The method may be used routinely before blood urea estimations are made, the inconvenience of unnecessary venipunctures being thus avoided. When blood-urea estimations are impossible, it may be employed as an adjunct to urinalysis and the phenolsulphonephthalein test, since the specimens may be collected at the bedside and analyzed in the physician's office. It may be used also as an office test to detect cases of retention.

On the Surgical Treatment of Diseases of the Prostate Gland. E. S. Judd[12]: Benign changes in the prostate are serious just so far as they interfere with the function of the kidneys. Inflammation arising in the prostate in association with urethral infection usually subsides gradually as in other tissues; in certain cases, however, it goes on to suppuration and abscess formation, necessitating surgical relief. Prostatic inflammation usually occurs in young men or men of middle age, at a time of life when the prostate is functionally active. In the cases of younger patients conservatism should be practiced. In men past middle age operation is usually advisable.

The trouble following benign enlargement of the prostate depends on the amount of interference with the function of the bladder and urethra. Benign enlargement develops in the gland like a new growth. The tissues are compressed by the growth and form a capsule from which the adenomatous hypertrophy can be readily enucleated. If prostatectomy is performed in the early stages of the enlargement there should be no mortality and only a low morbidity. Difficulty arises from the impairment of important functions as a result of long-standing obstruction.

Cancer of the prostate in most cases arises in the posterior lobe, that portion of the prostate which is generally not removed in a suprapubic prostatectomy. The best results are obtained when the prostatectomy is followed by radium treatment.

At the Mayo Clinic prostatectomy is performed in the same way as abdominal operations, every step being visulized. Exposed tissues can be packed off and hemorrhage can be controlled by sutures.

Sacral nerve block gives the most satisfactory anesthesia for prostatectomy and practically never causes postoperative complications. It is simply and easily induced and gives an anesthesia of an intensity and duration sufficient not only for the removal of the prostate but also for resection of the bladder for other conditions if this should be necessary. It must be supplemented by suprapubic infiltration. The injection of novocain into the region of the sacral nerves should be done slowly because slow absorption of the solution tends to minimize the possibility of transient toxic effects.

Bladder, Urethra, and Penis. G. Lusena[13]: Myoplastic Operations in the Treatment of Urinary Incontinence in the Female. The author has devised a new method of myoplasty which he claims is much less traumatizing than the other methods. The technique is as follows: Longitudinal incisions are made on the anterior vaginal wall, two vaginal strips are dissected, and the urethra is dissected as far as the neck of the bladder. The skin of the thighs is then incised for about 15 cm. over the tendon of the gracilis muscle, beginning at its pubic insertion, the gracilis muscle is exposed, followed to its insertion, separated from its fascia, and sectioned distally at about 12 cm. from its insertion, being left attached to the pubes by its tendon. The two muscle strips are drawn through the incisions in the vaginal wall and sutured together so as to raise the neck of the bladder as much as possible. The muscle strips are then covered with skin strips taken from the region and all wounds are closed.

This operation proved simple and quick and was followed by a smooth convalescence. Shortly after the patient left the hospital she was able to retain urine for three hours.

Detachment of the muscle strips from the gracilis is a much less serious operation than removal of the anterior aponeurosis of the rectus muscle. The nerves are sectioned, but the nutrition of the strips is not disturbed.

The gradual rather than immediate return to normal continence noted by the author was observed also by Stoeckel. The reason must be sought in the reduction of bladder capacity and the necessity for frequent evacuation. With continence, the bladder gradually reacquires its normal distensibility, the intervals between evacuations then becoming longer.

Urinary Antiseptics. H. H. Young[14]: Urinary infection is by no means simple. In infection of the lower urinary tract, the prostate, seminal vesicles, vas deferens, epididymis, teeth, tonsils, sinuses, or colon may cause re-infection of the urinary tract. In the treatment of the local lesion, the adnexa, such as the kidney tubules, prostate, seminal vesicles, and epididymis, must be considered before permanent sterilization can be expected.

In the selection of antiseptics their germicidal strength, toxicity, irritability, coagulability in serum, urine, and body fluids, and penetration must be considered. The antiseptic drugs in general use vary greatly in these respects.

Meroxyl is more powerful against the colon bacillus than against the staphylococcus. Next to meroxyl, mercurophen is the most active antiseptic in serum in one-minute exposures with the staphylococcus. Next in order is mercurochrome.

Against the gonococcus, meroxyl is far more powerful than all other antiseptics. The next most effective is mercurochrome.

As regards gonococcal infections, Young states that several of the new antiseptics, and particularly meroxyl, are agents which may be found of great value. Most of these drugs cause little or no irritation when used in the proper strength, and practical experience shows that all urethral injections and irrigations should be fairly dilute.

Silver nitrate has retained its position because the pronounced reaction which it sets up produces hyperemia and gives results which are not to be explained by germicidal activity. As it does not penetrate, it is most valuable for surface applications.

Penetration is of great importance. Therefore, although meroxyl shows a wonderful germicidal power, it is not in many cases as effective as mercurochrome.

In the treatment of infections of the lower urinary tract, the author almost invariably treats not only the bladder but also the prostate and seminal vesicles. His usual plan is to massage the prostate and vesicles three times a week and then irrigate the bladder by hydraulic pressure with 1:1,000 meroxyl, and after this is voided, to inject 1 per cent mercurochrome into the prostatic urethra. In some cases the mercurochrome is injected through a urethroscope into the ejaculatory ducts, ampulle and vesicles.

Young states that mercurochrome is of value when given intravenously not only because of its action as a urinary antiseptic, but also because of its effect upon general infections. One of his cases, diagnosed as colon bacillus pyelitis, was sterilized by one intravenous injection of 40 c.cm. of a 1 per cent solution of mercurochrome (5 mgm. per kilo of body weight). It is interesting to note that in this instance dead bacilli were found in the urine for three days, and that subsequently no bacilli were found either on slides or in cultures. A case of pyelitis due to bacillus coli was similarly cured by one intravenous injection of mercurochrome, but two others were not sterilized although greatly benefited. Later, one of these cases was given 0.6 gm. of neoarsphenamin; the infection then promptly disappeared and the urine remained sterile.

Young says that the use of arsphenamin has been previously reported. One of his cases was that of a child with a very severe colon bacillus infection of the kidneys associated with high fever for many weeks. The intravenous injection of novarsenobenzol was followed by quick recovery. However, in other cases with the same organisms no results were obtained by this treatment.

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BOOK REVIEWS

EPONYMS OF DERMATOLOGY

A REVIEW of the article entitled Eponyms of Dermatology by Herman Goodman in the recent number of the *Archives of Dermatology*, reveals the names of two Boston physicians, whose original work in the field of dermatology has resulted in the signal honor of having diseases named after them. The excerpts which follow are from Goodman's article.

WHITE'S DISEASE. Keratosis follicularis.

James Clarke White was born in Belfast, Maine, U. S. A., on July 7, 1833. He studied in Vienna. He was the pioneer dermatologist of Boston, Mass. He was the first professor of dermatology in the United States, Harvard Medical School. He was the first president of the American Dermatological Association, and president of the sixth international dermatology congress in New York, 1907. White and Darier independently described the disease which has variously been known by each of their names, but predominantly by that of Darier's. White's paper was Keratosis follicularis, *Am. J. Cutan.*, 1889: 7, 201; and 1890: 8, 13. White made many great advances in the practice as well as the teaching of dermatology. He wrote a paper on "The old age of the skin," *Boston M.* & *S. J.*, 1882: 107, 484. White's monograph on Dermatitis Venenata remains classic, Boston, 1887. He was the author of numerous monographs on dermatology. See "Sketches from my life," 1833-1913, with bibliography, and, "In memoriam, James Clarke White," *Brit. J. Derm.*, 1916: 28, 1.

BOWEN'S DERMATOSIS. Precancerous dermatosis.

John Templeton Bowen was born on July 8, 1857. He is a dermatological practitioner of Boston. He is a member of the American Dermatological Association and its president, 1902-1903. The new precancerous dermatosis with which Bowen's name is associated was first described in the *J. Cutan. Dis.*, 1912:30, 241; and 1915:33, 787. Darier has confirmed the peculiarity and rarity of this affection. Bowen has made clinical, bacteriological and blood examinations including autopsy reports of a series of cases of Dermatitis exfoliativa, *J. Cutan, Dis.*, 1910:28, 1. He also reported a severe and persistent example of Hebra's type of Pityriasis rubra in *St. Paul's Med. Jour.*, 1900:2, 91. He has a good review of the literature of Hydroa Vacciniforme, *J. Cutan. Dis.*, 1894:2, 89. Bowen described a combination of purpura and angioneurotic edema, *J. Cutan. Dis.*, 1892:10, 434. He published, "The Epitrichial Layer of the Human Epidermis," in the *Anat. Anz.*, Jena, 1889:4, 412.

Manual of Gynecology and Pelvic Surgery. By ROLAND E. SKEEL, M. D., A. M., M. S. Philadelphia: P. Blakiston's Son and Company, 1924.

Since the publication of Davenport's classic manual, there has appeared no better brief treatise on the diseases of women than this volume by Skeel, whose first edition has been previously reviewed in the JOURNAL. This second edition is augmented by the inclusion of new matter relative to radium and Roentgen therapy, without transcending the condensed form of a manual designed primarily for students and practitioners. There are 281 illustrations, and bibliographic references are appended to each chapter. The chapter on anatomy, by Dr. A. J. Skeel, is particularly to be commended.

Case Records of the Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY

RICHARD C. CABOT, M.D., AND HUGH CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 10351

An American widow of fifty-three was brought to the Emergency Ward June 6 in coma of unknown cause. The history was obtained from her son-in-law.

F. H. and P. H. not obtained except that one daughter was in good health and that the patient was being treated for pains in the knee-joints.

P. I. Two nights before admission the patient, who had previously been in good health except for some pains in the knee-joints for several months, was found stuporous in bed, breathing noisily. She was aroused after an hour and was apparently normal on the following day, going out for a walk. About eight o'clock the evening before admission she was again found in the same condition. At first she could be aroused to answer questions. At midnight this was no longer possible. At 2.35 a. m. she was brought to the hospital. There was no history of trauma. She had taken no alcohol and no drugs except the medicines prescribed by her physician and part of a bottle of "tanlac" in March. The son-in-law did not know very much about her complaints.

P. E. A poorly developed and nourished woman looking much older than fifty-three, unconscious, with marked hyperpnea and at times modified Cheyne-Stokes breathing. Yellowish dry skin. Scaling of thighs. False teeth. *Lungs* negative. *Heart* not enlarged to percussion. Apex impulse not found. Sounds of poor quality, difficult to hear. Pulse of very poor quality, difficult to obtain. *B. P.* 90/60? *Abdomen, genitals, extremities, rectal examination, pupils* and *reflexes* normal.

T. 98°. *P.* 120. *R.* 40. *Urine.* Amount and sp. gr. not recorded. No albumin or sugar. *Blood.* Hgb. not recorded, leucocytes 80,000, many large abnormal cells of the bone marrow series, few normal polynuclears and lymphocytes.

Fifteen grains of caffein was given intramuscularly, followed in half an hour by five grains intravenously. The patient remained unconscious. The pulse grew weaker. In less than two hours she quietly died. At a lumbar puncture after death 10 c.c. of clear colorless fluid was obtained easily, drop by drop in rapid succession—the pressure perhaps slightly increased. There were no cells.

DISCUSSION

BY DR. RICHARD C. CABOT

NOTES ON THE HISTORY

We know at once that we are in for trouble. Most of our wrong diagnoses are made in cases of this sort, partly because we do not get a good history, partly because we do not have the coöperation of the patient during physical examination.

I do not know any connection between pains in the knee-joints and sudden coma. So that I should say that the first thing we know about this patient from the point of view of diagnostic study is coma. There was no history of trauma. That is the first thing we inquire about,—trauma to the head with concussion or compression of the brain.

A PHYSICIAN: "Tanlac" is chiefly alcohol.

DR. CABOT: But she had taken only "part of a bottle." We will not discuss the chances of alcoholic coma, as we do not know the size of the bottle.

We know practically nothing more. The whole history is that of a person who suddenly went into coma at fifty-three. What is it? (1) Vascular disease of the brain, hemorrhage being the commonest type, (2) uremia.

NOTES ON THE PHYSICAL EXAMINATION

Evidently she was so ill that they were not sure of the pulse pressure.

The negative test for albumin is of some help.

I think I saw a specimen of this blood. I can confirm all that is said here and make it a little more definite. There were many myelocytes. It was the blood of myelogenous leukemia.

DIFFERENTIAL DIAGNOSIS

That this patient had leukemia I know. What else she had I do not know, and I do not know what she died of. Leukemia patients do not ordinarily die suddenly. I have known two to die suddenly of cerebral hemorrhage, and I do not see any proof that this patient did not have cerebral hemorrhage. But the remarkable thing is that there is no paralysis and no aphasia. Can we have cerebral hemorrhage without paralysis and without aphasia? Yes, and not very uncommonly. I should say that one in every four or five that I see is without paralysis and aphasia. Then where is the hemorrhage? Often down at the base of the brain, over the cerebellum or the pons, sometimes in both ventricles, equally present both sides, therefore giving no focal signs, occasionally in the frontal lobes. So that it is not at all unusual to have cerebral hemorrhage without paralysis.

I have never seen any other sudden deaths in leukemia, but that she did have leukemia I am sure from the blood which I saw. If she had leukemia she ought to have a big spleen, and I believe she did have it. I think if we had been there we should have felt it. With this type the glands ought not to be enlarged. The liver should be somewhat enlarged. We can have a pure myelogenous leukemia with no changes in the spleen or liver, but it is very rare. That is as far as I can go.

A PHYSICIAN: Getting up and out for a day —isn't that against a cerebral hemorrhage of any kind?

DR. CABOT: No; I have seen that. I suppose we have to say that the first bleeding was small and did not make much increase of intracranial pressure. But I have seen no cases postmortem with such a history as that.

A PHYSICIAN: Couldn't this be uremic?

DR. CABOT: No; I don't think I have seen a patient with as short a history and as little in the urine as this who at necropsy we thought died uremic.

A PHYSICIAN:. With coma why don't they consider diabetes?

DR. CABOT: Because of the hyperpnea? There is no sugar in the urine, and while we can have diabetic coma without sugar in the urine, it is so rare that it would take a great deal of history to make us think of it.

A PHYSICIAN: Could the first attack be a vascular crisis without hemorrhage?

DR. CABOT: It could be. The second one might be too. Vascular crises can kill people.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Not made.

DR. RICHARD C. CABOT'S DIAGNOSIS

Leukemia.
Cerebral hemorrhage.

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesion*

Myeloid leukemia.
Leukemic infiltration of the spleen, liver, myocardium and retroperitoneal lymph glands.
Leukemic hyperplasia of the bone marrow.

2. *Secondary or terminal lesions*

Tuberculosis of the kidneys.
Wet brain.

3. *Historical landmarks*

Slight chronic pleuritis, right.
Cholelithiasis.

DR. RICHARDSON: The pupils were markedly dilated. On section the pia was wet. The brain weighed 1148 grams. The tissue was wet, otherwise negative.

DR. CABOT: No hemorrhage; so we have another guess.

DR. RICHARDSON: The trunk showed subcutaneous fat in fair amount. The retroperitoneal glands were slightly enlarged. The liver was one cm. above the costal border on the right. The diaphragm was at the third rib on the right, at the fourth interspace on the left. The lung tissue was generally spongy, with a moderate amount of edema.

The liver weighed 1290 grams. The surface was smooth, the tissue plump, with some increase of consistence and in places a few indefinite grayish streaks and areas as if of infiltrating cells. The gall-bladder was slightly distended with bile. Six stones were found, five of them one cm. in greatest dimension, one two and a half cm. They consisted of brownish crystalline material. The bladder mucosa, bile-ducts and pancreas were negative. The spleen weighed 240 grams, slightly enlarged, the surfaces smooth, the tissue plump, brown-red, rather homogeneous.

The kidneys weighed 290 grams, with free capsules, surfaces smooth, pale, brown-red in color. The kidneys were negative except that on the surface of each there were several smaller and larger slightly elevated pale grayish areas which on section extended into the kidney substance for short distances and then faded out like tumors, but not like discrete tumors,—like infiltrating masses.

The marrow of the right femur filled the cavity, was mushy to rather firm and grayish brown, with dirty brownish mottling.

DR. CABOT: Why did she die in such a hurry?

DR. RICHARDSON: I don't know.

A PHYSICIAN: Does that confirm vascular crisis?

DR. CABOT: But the cerebral vessels were all right. I do not know what we are to say about the suddenness of death here. I do not know why they did not examine the smear until after death. Of course she must have been sick for a long time. There was no evidence of anemia?

DR. RICHARDSON: Nothing remarkable.

DR. CABOT: But as to the pallor of organs and so on?

DR. RICHARDSON: The organs generally showed rather pale tissues.

DR. CABOT: Leukemic people die usually of anemia, not of leukemia, of the driving out of the red cells. As long as they are not anemic they are not very sick. So that although we have made the diagnosis here the cause of death is still very mysterious.

What happens in a vascular crisis? Vascular crisis is a most useful hypothesis which nobody can prove right or wrong and which gets us out of all sorts of difficulties. It is the hypothesis of a German named Pal. He wrote a book on the subject in which he bases his theory upon observations with the ophthalmoscope showing spasm of the retinal vessels at the same time as the comatose seizure, in which the brain after death showed nothing. That is about all the evidence there is. We may say that what we know the retinal vessels do we may guess the brain vessels do. We may have paralysis, sometimes hemiplegia too, and yet post mortem nothing. We cannot disprove it, but we cannot go any further.

"Transient cerebral accident?" That means that a person gets a hemiplegia or an aphasia and is all well in a few hours. What Pal says is that these arteries shut down and then relax. Clinically it is a very common thing. A person has a monoplegia. It passes off in a few hours. We used to say it was a small hemorrhage, but post-mortem we did not find the hemorrhage.

CASE 10352

A Portuguese (Madeira) cotton mill operative of twenty-six entered March 15 complaining of pain in the stomach of two years' duration. His poor English made it difficult to get a complete and dependable history.

F. H. and *habits*. Good.

P. H. He had always been well. A year ago he had his tonsils and adenoids removed. For a year he had pruritus. He had occasional mild headaches. Lately his legs had been weak. His best and usual weight two years ago was 145 pounds, his present weight 133.

P. I. Two years ago he began to have an occasional sense of discomfort in the epigastrium about an hour after meals, never severe, not radiating, seldom causing emesis. In the intervals he was well. A year before admission the discomfort began to be more persistent and he often vomited. Medical treatment gave no relief. The sense of discomfort gradually changed to one of dull burning pain, coming on about an hour after eating, often causing emesis and relieved by soda, vomiting or food. This pain had occurred practically every day since January. On the occasional days when it did not occur he felt perfectly well. It often made it difficult for him to sleep, occasionally awaking him. At times it was severe enough tc double him up. He had never had hematemesis, coffee ground vomitus, bloody or tarry stools, chills, fever, jaundice, or radiation of the pain. For the past two weeks it had been present a large part of the time and there had been repeated vomiting until the past few days, during which he had had almost constant desire to vomit but had not done so. Since January he had been on a five-meal gastric diet. He had lost practically no weight, but during the past week had had marked loss of strength.

Records of the Out-Patient Department show a negative Wassermann January 11. January 17 X-ray showed the stomach active, suggesting irritability; emptied in normal time; appeared regular in outline. The sphincter was apparently regular. First portion of the duodenum large. In this region there was constant irregularity in outline, and tenderness. The remainder of the gastro-intestinal tract was not remarkable. Later notes showed steady improvement until March 8, when he was worse.

P. E. Entirely negative except for small glands in the submaxillary and axillary regions, somewhat reddened tonsils, a few musical râles in the left chest, and very slight rigidity of the right epigastrium. The left epigastrium was entirely soft. No tenderness was elicited.

Before operation *T.* 96.3°, *P.* 53-90, *R.* 16-24, *urine* and *blood* normal. *Wassermann* negative. *Gastric analysis* March 20. *Fasting contents.* 50 c.c. of watery mucoid material containing a few food particles and a small number of dark clotted blood flecks. Guaiac positive. Free acid 28, combined 12, total 40. Microscopic food slightly positive, starch slightly positive. *Test meal,* one hour. 30 c.c. of watery material with definite food particles. Guaiac negative. Free acid 40. Total acid 59. *Stools.* Guaiac positive at one of two examinations.

It was felt that the low roughage diet which the patient had been having was probably as good treatment as he was able to follow and keep his work, which forced him to keep up with a machine. Therefore operation was advised on the medical service.

March 21 it was performed. The patient made a good operative recovery and an extremely good convalescence. By April 3 the wound was clean and held tight. Gastric analysis gave 120 c.c. of clear yellow fasting contents with no pus or food, guaiac positive, free acid 16 c.c., combined 25 c.c. Test meal gave 160 c.c. of yellow material with flecks of mucus; no pus or food, guaiac negative, free acid 5 c.c., combined 25 c.c. April 3 he was discharged to the Out-Patient Department.

X-RAY INTERPRETATION

Findings are those of probable ulcer of the first portion of the duodenum.

PRE-OPERATIVE DIAGNOSIS

Duodenal ulcer.

OPERATION

Gas and ether. Upper midline incision. At the duodenal side of the pylorus there was an indurated area with a stippling over it. Posterior gastroenterostomy was done. No gallstones were felt in the gall-bladder. Many adhesions about the duodenum. Over the area of induration no definite crater was made out. Gallbladder, pylorus, pancreas and kidneys palpated and found to be normal. A loop of jejunum identified and clamped. Posterior wall of stomach exposed by incision through the gastrocolic omentum. This was sewed to the stomach about the perforation in the omentum. Clamp applied to this fold of stomach and gastroenterostomy done with three rows of sutures on the posterior wall.

(Registry of bone sarcoma scissors invented by Dr. E. A. Codman. This is the first time such scissors have ever been used, so far as is known.)

LATER NOTES FROM THE OUT-PATIENT DEPARTMENT RECORDS

April 10 he had been entirely well since discharge. He was put on an improved five-meal diet. May 13 he was entered in the Gastro-Intestinal Clinic. He had returned to his work in the cotton mill a week earlier, doing night work. He had felt quite well until he began this. Since that time he had had a return of his old symptoms. He complained of considerable eructations of gas and almost constant discomfort and sense of fullness in the epigastrium. He had worked only five nights. He was advised to spend five days in bed on a five-meal diet. May 20 he felt much improved. His weight was 129 pounds. He now had no gastric symptoms except a little gas. He was advised not to return to work for three weeks, and was given an increased diet. May 27. Weight 128½ pounds. He had no pain or nausea and his bowels moved normally. He had more or less gas and his appetite was poor. He had been keeping to his diet well, but not getting enough calories, and no cream. Cream was added to the diet. June 10. Weight 131 pounds. He had had no pain that week, but had had slight discomfort the week before, and more or less gas. He had kept to his diet. He was to look for lighter work, eight hours a day instead of twelve hours a night.

DISCUSSION

BY DR. MONROE A. MC IVER

From the point of view of diagnosis this case presents no difficulties. A sufficient period had elapsed between the onset of the earliest symptoms and the patient's first entrance to the Out-Patient Department to make the classical history of duodenal ulcer clear-cut. It only remained to confirm this by means of X-ray studies.

From the point of view of therapeusis, however, this case has not proved so simple. The Out-Patient Department record shows that although for three months before his entrance to the medical service of the hospital the patient had been on a five-meal gastric diet, presumably supplemented by alkalies, his progress had not been satisfactory. It is difficult to reconcile his statement that food always relieved his pain with the fact that he did not make satisfactory progress on this régime. We note from the history that he speaks poor English; it is often surprisingly difficult to make foreigners understand and carry out even as simple a therapeutic measure as the five-meal gastric diet. Even allowing, however, for this possible lack of coöperation on the part of the patient, I believe we shall have to admit that we are evidently dealing with a fairly acute ulcer. After thorough study in the medical ward it was apparently decided that considering the lack of success of Out-Patient treatment and his economic status an operation would probably be the best therapeutic measure.

The pathology found at operation was characteristic of duodenal ulcer, and a posterior gastroenterostomy was performed. Without entering here into a discussion of the various operative procedures which may be applied to duodenal ulcer, it will suffice to say that posterior gastroenterostomy is probably the simplest operative treatment available, and in spite of its drawbacks is one that in a large percentage of cases is of undoubted benefit.

This patient was referred to the Gastro-Intestinal Clinic about a month and a half after his discharge from the wards. The operation had given him complete relief from all symptoms until the time when he had returned to work,—and this in spite of the fact that he had apparently paid little attention to diet. On returning to work he had had a return of his old symptoms in a rather aggravated form, and he had accordingly re-entered the Out-Patient Department. He responded fairly well to the rest in bed and the dietary treatment that was prescribed at this time, and when last seen was given permission to return to work provided the work was of not too strenuous a character.

I believe that if this patient had been carefully supervised from the time he left the hospital he would never have suffered this relapse. A point here in regard to the man's work: we have found that ulcer patients who work at night are very much more difficult to manage than those who work by day; and this seems to be true even when they are able to carry out their dietary regulations carefully and are apparently getting enough sleep during the day.

It will be noted that in the post-operative treatment no alkalies were given. The advantage of giving excessive doses of alkali has been rather seriously called into question in a great deal of the recent literature. There is no doubt but that in certain cases, notably those with some renal involvement, there may be real danger in giving an excess of alkali. But even discounting those cases, the rationale of the alkali therapy is open to criticism. In the Gastro-Intestinal Clinic we have practically abandoned its use; and in the case under discussion this course was especially logical, since, as will be noted, the gastric analysis showed no excessive acid. It is certainly striking how much may be done for these patients without the use of alkalies, by frequent feedings of a bland diet, coupled with careful regulation of the general mode of life, being certain to ensure adequate periods of rest.

The present case illustrates very strikingly a fact which we have encountered many times in the Gastro-Intestinal Clinic: namely, the need for careful supervision of cases that have recently undergone gastric operations. Following operations the patients often experience such immediate relief from their old symptoms that they are prone to disregard all dietary precautions, and only too often find themselves with their old trouble back,—and in even worse plight than before, inasmuch as they have exhausted their best chance for radical cure.

DIAGNOSIS

Duodenal ulcer.

CASE 10353

An American of sixty-nine, for eight years a bookkeeper, before that a wholesale beef chopper for eighteen years, entered September 26 complaining of diarrhea of two months' duration.

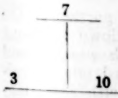
F. H. Not recorded.

P. H. In general he had been a healthy man. He had the diseases of childhood. At thirty-nine he had hemorrhoids; none since that time. At forty-four he had syphilis, treated by a physician for three years. At forty-nine he had erysipelas. At fifty-three he was ill in bed a week with "indigestion." At sixty-three he had gonorrhea, treated by a physician. For three years he had had bilateral inguinal (?) hernia, not troublesome, dating from an attack of coughing. He urinated once at night.

Habits. Before prohibition he drank six or seven glasses of alcohol a day.

P. I. Two and a half months ago, when feeling well, he began to have frequency of defecation, six times by day and once or twice at night. Two weeks after the onset he spent a day in bed without eating, and felt nauseated but did not vomit. Since that time the diarrhea had increased to ten or twelve movements by day and four at night, with some tenesmus. He had grown progressively weaker, and in three months had lost eighteen pounds. For two months he had been up and about, but languid. Two months ago his stools were formed. At admission they were entirely unformed, and twice had contained fresh blood intimately mixed. He had noticed dark brown stools but no tarry stools. He had no pain at any time.

P. E. Well nourished. Teeth all false. *Lungs* clear. Apex impulse of the *heart* not found. Midclavicular line not recorded. Other measurements as shown in the diagram. Sounds and action normal. Radials palpable. *B. P.* 155/90. *Abdomen* and *genitals* normal except for marked right inguinal hernia, reducible. *Extremities* and *reflexes* normal. *Pupils* slightly irregular, otherwise negative. *Rectal examination* showed what seemed to be a small cyst or dilated varix on the right side of the external anal orifice. Sphincter tight. No thickened veins felt, but fresh blood withdrawn on the finger.



Before operation *chart* normal, *urine* cloudy at one of two examinations, occasional leucocytes at the second; *blood* normal. *Wassermann* negative. *Stools.* Gross blood at both of two examinations. Guaiac very strongly positive at both. *X-ray.* Considerable difficulty in passing tube. The rectum filled poorly. The sigmoid was oblique and the descending colon was fairly well filled but of poor tone, not very movable. No barium could be made to pass through the transverse colon even by palpation. *Proctoscopy.* Five inches from the anus was a fungoid ulcerating bleeding mass nearly surrounding the rectum, narrowing the lumen much, but not causing complete obstruction.

October 3 operation was done. The following day the patient developed râles throughout both sides of the chest, with a respiratory rate of 40. The temperature was not elevated, however, and no dullness was found. The following evening the râles reappeared in a very short time. Digitalis and atropin were given. October 6, however, the chest was free from râles. The colostomy was opened. October 8 there were a few râles left. The patient was breathing easily. An enema was given on account of the lack of free movements. October 10 the drain was taken out. The patient seemed a little weaker than for the past few days. October 12 he had diacetic acid and acetone in the urine.

The morning of October 13 he suddenly had a discharge of blood from the colostomy. He was given morphia and put on shock treatment. At noon there was another hemorrhage. No large amount of blood was lost at any time, however. The urine showed sugar, diacetic acid and acetone. At midnight the patient died.

DISCUSSION

BY DR. EDWARD L. YOUNG, JR.

At forty-four,—twenty-five years ago,—the treatment for syphilis was the more or less inefficient treatment by mercury, so that he may well be still harboring an infection.

This is a story which at once suggests malignant disease of the large bowel. Why a patient will continue with the amount of trouble this patient has had for this length of time without reporting to a physician seems strange. It certainly makes a great deal of difference to the patient, because a condition which might have been curable earlier may well be incurable after two or three months of progress. Of course on the story alone we cannot make an absolute diagnosis of carcinoma, as an acute infectious colitis can cause just this story, but that is not so common at sixty-nine as is malignant disease.

The examination does not help us very much in regard to the exact diagnosis until we come to the X-ray examination and proctoscopy, and there we have a story which spells carcinoma, and from its size suggests that it is inoperable so far as entire cure is concerned. This is a statement which is hardly fair to make with much emphasis, because we have seen cases at this clinic where after many months of acute symptoms the operation apparently removed everything.

The operation I assume was an abdominal exploration, and then depending on the extent of the growth there either a radical removal or the first stage of a radical removal.

X-RAY INTERPRETATION OF BARIUM ENEMA

"Very suggestive of malignancy."

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Carcinoma of the rectum.

PRE-OPERATIVE DIAGNOSIS

Carcinoma of the rectum.

OPERATION

Gas and ether. Median muscle retracting incision. The growth in the rectum was felt extending up to the peritoneal floor, firmly adherent anteriorly. Enlarged glands in the mesentery of the rectum. Examination of the liver showed a large dilated gall-bladder surrounded by adhesions. No metastases felt. Because of the age of the patient and the acute gall-bladder it seemed wiser to do a colostomy without dissection of the pelvis in order that a cholecystectomy might be done. The patient's condition did not warrant doing a dissection of the pelvis and excision of the gall-bladder. The sigmoid was brought out of the median incision for a colostomy. The fascia and skin were sutured beneath the loop. The wound was closed about the pouch. A right rectus incision was then made and the gall-bladder, which was well to the outside, was brought into the wound. The gall-bladder was dilated, edematous, surrounded by adhesions, and there was fibrin over its surface in many places. It was aspirated and found to contain a cloudy white fluid. Investigation of the cystic and common ducts revealed no stones. It was therefore concluded that the distension might be caused by gravel. The gall-bladder was accordingly removed from below upward. Hemostasis was not perfect, but was fairly good. Cigarette wick inserted and wound closed in layers.

PATHOLOGICAL REPORT

Gall-bladder. The peritoneal surface is white and opaque. The walls are thickened. The mucous surface is bluish red. Microscopic examination shows erosion of the mucosa with infiltration in the walls and wandering cell infiltration.

Chronic cholecystitis.

FURTHER DISCUSSION

Operation showed that it was removable, but it was thought wise to remove the acute gall-bladder which was felt and do the first stage of a complete operation.

Following this operation there was some irritation in the lungs. But this seemed to be doing well, although the patient gradually grew weaker. From the description here it seems hard to believe that the bleeding alone could have been serious, although it must be remembered that a large amount of blood can be lost in the bowel without coming through the colostomy. There may have been a good deal of infection still left in the lungs which did not show. I do not see how it is possible to make any accurate diagnosis of the cause of death, but will simply say that between the lung infection, the shock of operation, the loss of blood, and possible infection of the peritoneum the load that the patient had to carry was more than he could handle.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Carcinoma of the rectum.
Cholecystitis and cholelithiasis.
Colostomy for cancer of the rectum.
Cholecystectomy for cholelithiasis.

DR. EDWARD L. YOUNG'S DIAGNOSIS

Carcinoma of the rectum.
Hemorrhage into the bowel.
Sepsis above the diaphragm.

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesion*

Adenocarcinoma of the rectum.

2. *Secondary or terminal lesions*

Hemorrhage into the large intestine.
Operation wound, cholecystectomy.
Anemia.
Fibrinous pleuritis.

3. *Historical landmarks*

Obsolete tuberculosis of a bronchial gland.
Slight chronic pleuritis.
Slight arteriosclerosis.
Slightly defective closure of the foramen ovale.

Dr. Richardson: The skin and mucous membranes were very pale.

The abdomen was not distended, but the wall was a little tense.

Beginning in about the middle portion of the transverse colon and extending down to about the middle of the sigmoid, which was sutured in the wound, the colon contained much semi-fluid blood-like material mixed with fecal material. In the lower part there was a large amount of blackish-red semi-fluid blood-like material. The mucosa in this portion of the intestine was negative. The lower part of the sigmoid was negative. The mucosa was pale. At a point about 8 cm. above the anus the rectum presented an oval thick plaque-like mass of new growth tissue 7 by 5 cm. It rested mainly in the posterior wall but extended for some distance into the lateral walls. The inner surface showed lip-like margins and was rather soft and necrotic. Beneath this the wall was thickened up to 7 mm. and infiltrated with grayish homogeneous new-growth-like tissue. There was considerable obstruction of the rectum by the mass.

The bronchial glands were slightly enlarged, pigmented, and one showed marked fibrocalcareous degeneration.

The pleura over the lower lobes of the lungs was coated with fibrous material. The peripheral portions showed a moderate amount of emphysema. The lung tissue generally showed a moderate amount of edema.

The aorta and great branches showed a slight amount of arteriosclerosis.

The gall-bladder was wanting. The cystic duct securely tied off; duct otherwise negative. The hepatic and common ducts, and the duct of Wirsung were negative.

The tissue of the spleen was a little soft.

There was a small hydrocele on each side.

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CURRENT LITERATURE

ABSTRACTORS

Gerardo M. Balboni
William B. Breed
Laurence D. Chapin
Austin W. Cheever
Randall Clifford
Ernest M. Daland
Horace Gray
Robert M. Green
John B. Hawes, 2d
John S. Hodgson
Fred S. Hopkins
Chester M. Jones
Charles D. Lawrence
Tracy Mallory
Herman A. Osgood
Francis W. Palfrey
Edward H. Risley
George C. Shattuck
William H. Shedden
Warren R. Sisson
John B. Swift, Jr.
George G. Smith
W. T. Sherman Thorndike
Wilder Tileston
Henry R. Viets
Shields Warren
Bryant D. Wetherell

Breast Hypertrophy—Non-Surgical Breast Conditions

Bartlett, E. I. (*Surgery, Gynecology and Obstetrics*, June, 1924).

Bartlett discusses this subject and believes that:

1. Breast hypertrophy is a clinical entity with a variety of histological pictures.
2. It is evidenced by an enlargement in the form of a lump involving a part of a lobule, a whole lobule, two or more lobules, a quadrant, a hemisphere, or the whole breast. Not infrequently there are multiple lumps in both breasts, each involving a small portion of a lobule.
3. The histological picture simulates that of the normal breast in the various stages of puberty hypertrophy, pre-lactation, or lactation hypertrophy, post-lactation involution, or atrophy.
4. Breast hypertrophy is not a new-growth and not a pre-cancerous process inasmuch as the same histological picture, minus the gross hypertrophy, may be seen in breasts that are normal.
5. It can be recognized by the clinical picture and without the aid of the exploratory incision.
6. It is not a local disease but a symptom of a disturbance which is located elsewhere in the body.
7. The treatment is medical, not surgical, and is directed toward the cause rather than the local manifestation.

[E. H. R.]

Endocrine Disturbances and Non-Union of Fractures

Kolodny, A. (*Surgery, Gynecology and Obstetrics*, June, 1924).

Kolodny presents an experimental study chiefly in relation to the effect of variations in the thyroid gland on the healing of fractures, and he concludes that among the other effects of endocrine disturbances there is a definite suppression of the healing of fractures. He does not, on the other hand, feel that all cases of delayed union or non-union are to be attributed to endocrine disturbances. Nevertheless a considerable number of cases may be so ascribed.

[E. H. R.]

The Giant-Cell Tumor of Bone and the Specter of the Metastasizing Giant-Cell Tumor

Bloodgood, J. C. (*Surgery, Gynecology and Obstetrics*, June, 1924).

Bloodgood states that on careful reinvestigation of all of his material he is unable to find a central lesion with an intact bone shell which resembles the giant-cell tumor in the gross, and more or less microscopically, that has not remained free from metastasis. Many of them are free of recurrence after curetting. Therefore, at the present time, if a surgeon explores a central bone tumor in which the x-ray, palpation, and exploration exclude tumor tissue outside the bone shell, or the capsule about the bone shell is destroyed, he can be certain that the only possible sarcoma is one resembling in the gross and in the section the osteogenic sarcoma of the chondromyxo type — a tumor easily to be distinguished from the giant-cell tumor or ostitis fibrocystica. If this statement is true, it simplifies the diagnosis, because the cellular pathology of the giant-cell tumor in a certain percentage of cases, especially under the high power, has been confusing to experienced pathologists, and even today is incorrectly diagnosed sarcoma, leading to unnecessary amputation or mutilating resections. The mutilation is especially great when the resection is done in the jaw.

[E. H. R.]

Gumma of the Thyroid

Williams, C., and Steinberg, Bernhard (*Surgery, Gynecology and Obstetrics*, June, 1924).

These authors report findings of one case and state in conclusion that:

1. Gumma of the thyroid is a rare lesion of syphilis.
2. Women are affected more frequently than men (14 of 21 cases).
3. It may result from both hereditary and acquired syphilis.
4. The symptoms are those of mechanical interference from the tumor. As a rule there is no disturbance of thyroid function. When present it is usually myxœdema, rarely hyperthyroidism.
5. The prognosis with active treatment is good.
6. The appearance of the tumor may lead to confusion with cancer.

[E. H. R.]

THE BOSTON
Medical and Surgical Journal
Established in 1828

Published by The Massachusetts Medical Society under the jurisdiction of the following-named committee:

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Subscription Terms: *$6.00 per year in advance, postage paid for the United States. $7.56 per year for all foreign countries belonging to the Postal Union.*

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the printer with galley proof of paper.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The Boston Medical and Surgical Journal, 126 Massachusetts Ave., Boston, Mass.

THE HARVARD SCHOOL OF PUBLIC HEALTH

The Harvard School of Public Health, having completed its second year of instrucion and having taken up its quarters in its new building on Van Dyke Street, has just published its announcement for the coming academic year.

The historical statement contained in the announcement very properly gives great credit for the influence of the Univeristy upon public health to Dr. Henry P. Walcott, senior member of the Harvard Corporation, and first chairman of the State Board of Health. The school is the result of a bringing together and consolidation of the activities of several departments, rather than a broadening of the scope of any one department. This is natural when we view the history of instruction and research in the fields of preventive medicine and public health. In 1909, according to the prospectus, the Department of Preventive Medicine and Hygiene was established in the Medical School, and the degree of Doctor of Public Health was first conferred in 1911. In 1911 a Department of Sanitary Engineering was founded in the Engineering School. In 1913 the Department of Tropical Medicine was formed, and in 1918 the Division of Industrial Hygiene was organized in the Medical School. In 1913 the "Harvard-Technology" School of Public Health was formed, continuing under the joint management of Harvard and Technology until the fall of 1922, when the new Harvard School of Public Health threw open its doors.

The organization of the new school followed closely on the receipt of the Henry P. Walcott Fund of Harvard University, an endowment for the purpose from the Rockefeller Foundation. This gift made possible the enlargement of the existing departments of Preventive Medicine and Hygiene, Bacteriology, Sanitary Engineering, Tropical Medicine, Parasitology and Industrial Hygiene; the creation of new departments of Public Health Administration, Child Hygiene, Mental Hygiene, Communicable Diseases, and Ventilation and Illumination, and the purchase of the building adjacent to the Medical School, formerly occupied by the Infants' Hospital.

The purpose of the School of Public Health, as stated in its announcement, is "to provide the scientific groundwork of expert knowledge which underlies efficient health administration, together with some actual personal acquaintance with modern public health practice of the best types, and thus to prepare students for careers in public health." The School confers the degrees of Bachelor of Public Health, Master of Public Health, Doctor of Philosophy (in Hygiene), Doctor of Medical Sciences and Doctor of Public Health.

In the foundation of this school, ranking with the best in the country, Harvard has taken a great forward step in public health work.

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AN OLD DESK

The Social Service room of the Massachusetts General Hospital is the present repository of a rather more than middle-aged desk, a desk of ancient architecture with solid turned legs and wood-knobbed drawers. It is a double desk, with hinged sloping covers, and on the under sides of the covers and on the desk top beneath them is a signatory roll of the house officers of the hospital, or many of them, from a decade before the Civil War until after the World War.

The earliest record to be found by the casual seeker is that of A. E. Sawyer, who in 1851 wrote up his histories and daily notes at the old desk, by the midnight oil, no doubt with an equally industrious house pupil facing him. In 1855 L. U. Sargent, Jr., had enrolled himself upon this unofficial scroll, and from then on the names increased in number. Here in 1865 our own John Collins Warren penned his signature, and below it Thomas Dwight, later professor of anatomy. The name of John Homans is here and that of Homer Gage; James G. Mumford, surgeon and author is entered on the list, and Harvey W. Cushing and Hugh Cabot may remember having recorded their names in their proper places. The present chiefs of the East and West Surgical Services, Franklin G. Balch and Charles A. Porter, may or may not recall having registered, but their names are present, as are those of Frederic A. Washburn, director of the hospital, and James S. Stone, recent president of the Suffolk District Medical Society and surgical chief of the Children's Hospital.

We of the Western Hemisphere are too prone to forget the achievements of the past. In our worship of the Brand New we have scant time for a fitting veneration of that which has gone before and proven its worth and left its mute reminders; not that we have no antiquarians among us; not but that many of us respect the accomplishments that laid the foundations for our own successes, but by and large we are too engrossed in the strivings of the present to pay more than a passing respect to the labors of those who have achieved success before us, and to the methods by which they achieved it.

The old house officers' desk is still preserved and still fulfils some useful function, but its existence has been forgotten by many who once toiled over it and its interest as a unique hospital record is unknown by many who see it almost daily. If the ether dome is to become once more accessible and visited as it will be if a utilitarian purpose is again added to its interest as a hospital museum, it will be highly fitting if the much signed desk may find its permanent resting place there.

The Massachusetts Medical Society

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Boston Lying-In Hospital, Boston, Mass.

(Communications and questions addressed to the Clerk will be gladly received and cheerfully answered.)

Puerperal deaths in the Commonwealth exclusive of Boston numbered twenty-nine in the Month of May, 1924. In addition one further death from puerperal septicemia was reported for April, bringing the total deaths in the puerperal state for that month to 31 (Boston excepted).

The deaths for May are classified as follows:

Puerperal hemorrhage	3
Acidosis, Cesarian	1
Childbirth, Heart Disease	1
Puerperal Septicemia	13
Puerperal Albuminuria and Convulsions	8
Puerperal Embolism	3

Two of the puerperal septicemic and one of the albuminuric cases were associated with Cesarian section. One case classified under puerperal albuminuria and convulsions was reported as "Miscarriage. Tetanus." One of the hemorrhage cases was associated with placenta previa, while another was reported as "Presumably ectopic pregnancy with rupture, followed by hemorrhage and shock. No surgical treatment."

The practitioner of obstetrics should make a point of examining his patients as a routine measure during the last month of pregnancy. If this is done the size of the baby can be estimated, with especial regard to the relationship between the fetus and the pelvis through which it is destined to pass, and the presentation and position mapped out with considerable accuracy. If routine external and internal pelvic measurements have not been made previously they should be done at this time.

Four maneuvres or "grips" are described for determining presentation and position. For application of these the patient should first empty her bladder and then recline on bed or examining table with her abdomen bared from ensiform to pubis.

For the first maneuvre the physician gently grasps the fundus uteri with one or both hands, and by making pressure with his fingers maps out the portion of the fetus contained within. The breech, most commonly felt in this location, is felt as an irregular dome-like mass which is somewhat movable from side to side, but which on being tapped with the fingers does not give the sensation of ballotment. If the baby's head occupies the fundus it will be felt as a harder, more definite, and rounder object, movable, and giving a definite sensation of ballotment.

The second maneuvre consists in placing the two hands flat on either side of the uterus and making gentle pressure with the fingers to determine on which side the baby's back lies. This will be found to be a smooth firm resistance beneath the uterine wall to one side or other of the median line, anterior and easily felt in the case of an occiput anterior position, well out in the flank and more difficult to make out if the baby is lying with occiput posterior. Conversely, the palpating hand on the opposite side of the patient will feel the less firm and more elastic uterine wall unreinforced by the fetal back, through which the baby's hands and feet, "small parts," can be palpated from time to time as small, irregularly rounded, and freely movable masses, easily demonstrated and anterior if the fetal back is posterior, more difficult to obtain and in the flank if the back is anterior.

In the third maneuvre the examiner grasps the patient's abdomen just above the symphysis between the widely-spread thumb and middle finger of one hand, approximating them gradually in such a way as to grip that part of the fetus lying above the pelvic inlet. If the vertex is presenting and has not yet descended into the pelvis it will be felt as a definite hard rounded mass; if freely movable from side to side it is said to be floating; if definitely felt but not movable it is called fixed. If, however, it is immovable and only barely palpable after the fingers have been made to sink downwards over the edge of the pelvis the head is well engaged, with the greatest diameter of the head below the plane of the inlet. Should the breach of the baby be presenting the third maneuvre will show either an apparent absence of a presenting part above the symphysis, or an irregular indefinite presentation.

The fourth maneuvre is of value only in a vertex presentation when the head is engaged, and is executed with the examiner facing the patient's feet. His hands are laid palm-down along the lateral aspects of the lower abdominal wall, while with the finger tips sunk down inside the pelvic brim the fetal head is felt for. Flexion of the head brings the brow upward, and sends the occiput downward, and the fingers of the hand corresponding to the latter therefore sink further down in the pelvis than do those on the side of the brow.

MISCELLANY

THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

Resume of Communicable Diseases

July, 1924

GENERAL PREVALENCE

The only disease showing an increase over the previous month was whooping cough.

	July 1924	June 1924	July 1923
Whooping cough	261	223	472

RARE DISEASES

Anterior poliomyelitis was reported from Boston, 4; Bourne, 1; Holyoke, 1; Nahant, 1; Revere, 2; Southbridge, 1; Westford, 1; Worcester, 1; total, 12.

Dog-bite requiring anti-rabic treatment was reported from Boston, 6; Chicopee, 1; Hudson, 1; Lowell, 14; Malden, 3; Melrose, 3; Stoneham, 3; West Brookfield, 1; Winthrop, 1; total, 33.

Dysentery was reported from Boston, 3; Cambridge, 1; total, 4.

Epidemic cerebrospinal meningitis was reported from Boston, 3; Cambridge, 1; Framingham, 1; Lawrence, 2; Lynn, 1; total, 8.

Encephalitis lethargica was reported from Boston, 1; Melrose, 2; Stoneham, 1; Tisbury, 1; Wakefield, 1; Worcester, 1; total, 7.

Hookworm was reported from Boston, 3; Cambridge, 1; total, 4.

Malaria was reported from Boston, 3; Dedham, 1; Lawrence, 1; total, 5.

Pellagra was reported from Boston, 5; Everett, 1; total, 6.

Septic sore throat was reported from Belmont, 1; Boston, 6; Bourne, 1; Holyoke, 1; Leominster, 1; Lynn, 1; Medford, 1; total, 12.

Smallpox was reported from Brockton, 2.

Tetanus was reported from Adams, 1; Boston, 1; Gardner, 1; total, 3.

Trachoma was reported from Boston, 6; Chelsea, 1; Lowell, 1; Worcester, 1; total, 9.

Trichinosis was reported from Boston, 2.

DISTRIBUTION

All Communicable Diseases

	July 1924	July 1923
Total cases (all causes)	4,238	4,564
Case rate per 100,000 population	105.9	115.0

Certain Prevalent Diseases

Diphtheria:	July 1924	July 1923
Total cases	412	482
Case rate per 100,000 population	10.3	12.1

Cities and towns noticeably exceeding their endemic indexes*:

Malden	(5)	14	Clinton	(0)	15
Lexington	(0)	4	Leominster	(0)	5
Auburn	(0)	5			

Measles:	July 1924	July 1923
Total cases	939	1,037
Case rate per 100,000 population	23.5	26.1

Cities and towns noticeably exceeding their endemic indexes*:

New Bedford	(1)	28	Peabody	(0)	31
Cambridge	(26)	50	Swampscott	(0)	16
Framingham	(5)	19	Wakefield	(3)	15
Franklin	(1)	16	Lowell	(10)	35
Natick	(0)	10	Medford	(6)	35
Newton	(18)	75	Somerville	(8)	42
Quincy	(16)	44	Waltham	(11)	57
Sharon	(0)	19	E. Longmeadow	(0)	42
Wellesley	(0)	14			

Scarlet Fever:	July 1924	July 1923
Total cases	381	437
Case rate per 100,000 population	9.5	11.0

Cities and towns noticeably exceeding their endemic indexes*:

Dedham	(1)	5	Clinton	(0)	7
Stoughton	(0)	6	Westfield	(0)	10
Melrose	(1)	8	Greenfield	(2)	8
Medford	(5)	14			

Whooping Cough:	July 1924	July 1923
Total cases	261	472
Case rate per 100,000 population	6.5	11.9

Cities and towns noticeably exceeding their endemic indexes*:

Fall River	(11)	25

Typhoid Fever:	July 1924	July 1923
Total cases	49	58
Case rate per 100,000 population	1.2	1.5
Tuberculosis, Pulmonary:		
Total cases	529	463
Case rate per 100,000 population	13.2	11.7
Tuberculosis, Other Forms:		
Total cases	85	64
Case rate per 100,000 population	2.1	1.6

*The Median Endemic Index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the name of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

STATE OF CONNECTICUT DEPARTMENT OF HEALTH

Weekly Morbidity Report for the Week Ending August 9, 1924

(Including all cases reported before 11 A. M., Monday, August 11, 1924)

Diphtheria

Fairfield County	
Bridgeport	6
Norwalk	1
Stamford (C)	2
Stratford	1
Hartford County	
Hartford	4
New Britain	1
New Haven County	
Derby	2
New Haven	1
Waterbury	2
Tolland County	
Tolland	1
State total	21
Last week	21

The following diphtheria bacilli carriers were reported:

Hartford	2
New Haven	5

Typhoid Fever

Fairfield County	
Bridgeport	2
Hartford County	
Enfield	1
New Haven County	
New Haven	3
State total	6
Last week	8

Scarlet Fever

Fairfield County	
Bridgeport	3
Danbury (T)	1
Stamford (C)	1
Hartford County	
Avon	1
Bristol	3
Hartford	2
New Britain	3
New Haven County	
Hamden	1
Madison	1
Waterbury	3
New London County	
Norwich (C)	1
State total	20
Last week	19

Measles

Hartford County	
Hartford	2
Wethersfield	1
New Haven County	
New Haven	4
Windham County	
Plainfield	1
State total	8
Last week	24

Whooping Cough

Fairfield County	
Bridgeport	2
Greenwich	1
Hartford County	
Bristol	1
Glastonbury	1
Manchester	5
Southington	2
Middlesex County	
East Haddam	2
New Haven County	
Ansonia	1
Branford	1
Madison	1
Meriden (C)	1
New Haven	4
Waterbury	1
New London County	
New London	1
Windham County	
Plainfield	1
State total	25
Last week	41

Other Communicable Diseases

Cerebrospinal men.	3
Chancroid	1
Chickenpox	3
German measles	1
Mumps	8
Poliomyelitis	9
Tetanus	1
Tuberculosis (pul.)	27
" (other forms)	4
Gonorrhoea	25
Syphilis	22

WELL BABY CONFERENCES

Somersville—Opportunity Room—Tuesday, Aug. 12, 2 to 4 P. M.

Berlin—Foresters Hall—Wednesday, Aug. 13, 2 to 4 P. M.

Colchester—Grange Hall—Thursday, Aug. 14, 2 to 4 P. M.

CONNECTICUT DEPARTMENT OF HEALTH

Weekly Morbidity Report for the Week Ending August 16, 1924

(Including all cases reported before 11 A. M., Monday, August 18, 1924)

Diphtheria

Fairfield County	
Bridgeport	3
Danbury (C)	1
Fairfield	3
Hartford County	
Hartford	3
Manchester	1
Litchfield County	
Torrington (C)	6*
Middlesex County	
East Haddam	1
New Haven County	
Ansonia	1
East Haven	1
Meriden (C)	1
New Haven	1
Wallingford (B)	1
Waterbury	1
West Haven	1
New London County	
Norwich (T)	1
Norwich (C)	1
Windham County	
Sterling	1
State total	28
Last week	21

The following diphtheria bacilli carriers were reported:

Hartford	2
Manchester	2
New Haven	5

Scarlet Fever

Fairfield County	
Bridgeport	6
Danbury (T)	1
Hartford County	
East Hartford	1
Hartford	1
New Britain	1
West Hartford	1
Litchfield County	
Torrington (C)	14*
New Haven County	
New Haven	2
Waterbury	1
West Haven	3
New London County	
Norwich (T)	1
State total	32
Last week	20

Measles

Fairfield County	
Bridgeport	1
Hartford County	
Hartford	2
New Haven County	
New Haven	2
State total	5
Last week	8

Whooping Cough

Fairfield County	
Bridgeport	1
Fairfield	4
Stamford (C)	3
Hartford County	
Bristol	1
Hartford	9
West Hartford	1
Litchfield County	
Woodbury	8
Middlesex County	
East Haddam	1
New Haven County	
Ansonia	1
Middlebury	3
Milford	1
New Haven	8
Waterbury	2
State total	43
Last week	25

Typhoid Fever

Hartford County	
Plainville	1
Wethersfield	1
Litchfield County	
Torrington (C)	2*
New Haven County	
New Haven	4
New London County	
Stonington	1
Windham County	
Plainfield	2
State total	11
Last week	6

Other Communicable Diseases

Cerebrospinal men.	2
Chickenpox	4
Dysentery (bacillary)	2
Encephalitis (epid.)	1
German measles	1
Mumps	8
Pneumonia (lobar)	3†
Poliomyelitis	8
Septic sore throat	6
Tetanus	1*
Tuberculosis (pul.)	22
" (other forms)	2
Gonorrhea	20†
Syphilis	21‡

*Delayed reports.
†One delayed report included in total.
‡Two delayed reports included in total.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

DISEASES REPORTED WEEK ENDING AUGUST 16, 1924

Disease	*No. of Cases*	*Disease*	*No. of Cases*
Anterior poliomyelitis	9	Ophthalmia	11
Chickenpox	14	Pneumonia, lobar	23
Diphtheria	98	Scarlet fever	46
Dog-bite	3	Septic sore throat	3
Dysentery	1	Syphilis	52
Encephalitis lethargica	2	Tetanus	1
Epidemic cerebrospinal meningitis	1	Suppurative conjunctivitis	4
German measles	2	Trichinosis	1
Gonorrhea	122	Tuberculosis, pulmonary	124
Hookworm	1	Tuberculosis, other forms	21
Malaria	8	Typhoid fever	18
Measles	35	Whooping cough	67
Mumps	24		

MEETING OF THE MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH

THE regular quarterly meeting of the Massachusetts Association of Boards of Health was held at the Atlantic House, Nantasket, on Thursday afternoon, July 24, with more than fifty members attending, representatives from Connecticut and Rhode Island also being present.

(The principal item of business at the general session, aside from the election of new members, was a resolution suggesting to the *Boston Transcript* the desirability of re-instating The Clinic, a department dealing with public health that has recently been discontinued.)

The three papers were on tuberculosis, the new program of the State Department of Public Health being outlined by Dr. John I. Pinckney Dr. Henry D. Chadwick of the Westfield State Sanatorium based his remarks about the stages of hilum tuberculosis on some twenty x-ray plates, his discussion being full of information while Dr. Cleaveland Floyd of Boston showed many prints from x-ray plates, with appropriate explanations.

REPORT OF THE INTERNATIONAL HEALTH BOARD OF THE ROCKEFELLER FOUNDATION FOR 1923

Parts of the report of Dr. Frederick F. Russell, the General Director of the International Health Board of the Rockefeller Foundation for 1923 have been made public. The complete report, containing a detailed account of the Board's activities and expenditures, accompanied by many charts and illustrations, will be ready for distribution soon.

During 1923 the Board coöperated with government agencies in carrying on health work of some kind in sixty-eight states and countries The activities reviewed include the development of rural health organizations in the United States and other countries; the world-wide campaign against hookworm disease; the latest victories over yellow fever in Mexico, Brazil Colombia, and other countries of Central and South America; coöperation in the health program of the League of Nations; the organization of facilities for training public health nurses in France, Brazil, and the Philippine Islands; the training of other public health personnel through schools of hygiene and fellowships; the development of public health laboratories; and field studies and demonstrations in malaria control in the United States and various tropical areas.—*Information Service of the Rockefeller Foundation.*

CO-OPERATION WITH THE LEAGUE OF NATIONS

"Coöperation begun in 1922 with the Health Committee of the League of Nations was continued. The three-year provision by the Board for interchange of public health personnel made it possible for the Health Committee to arrange a visit to England and Austria during the early months of 1923 for twenty-nine officers from sixteen countries. The third interchange (the second during the year) was held in the United States and was participated in by twenty-five officials from eighteen countries. In addition to these rather formal programs a small group of malariologists visited Italy during May and June, and individual laboratory specialists studied in Holland and at the Institute of Tropical Medicine in London. Plans have been made for four interchanges during 1924, to be held in Great Britain, Holland and Denmark, Switzerland, and the Far East. In addition special programs have been prepared for interchanges of experts in tuberculosis and in school hygiene.

"The first full year's work of the new Division of Epidemiological Intelligence of the Secretariat of the Health Committee has been successfully completed. The Division publishes a monthly bulletin which includes authoritative data from more than seventy countries in Europe, Asia, Africa, America, and Australasia. In the course of the development of this work it early became evident that the standards used in different countries in the compilation of their vital statistics vary widely. In order to harmonize the work, a grant was made by the Board to permit conferences of vital statisticians from the participating countries and during the year the first of these conferences was held in Geneva."—*Information Service of the Rockefeller Foundation.*

PUBLIC HEALTH DEMONSTRATIONS

"It is a well-recognized fact that practice in public health is years behind our knowledge. There is not so much a lack of information as to the cause of disease, or in many cases, of direct and positive means of prevention, but there is a lack of administrative machinery for putting scientific knowledge to work in an effective manner and at a reasonable cost, within the capacity of the community to pay. It is in such situations that opportunity is found for pioneer demonstrations which show what public health means; what it promises for individual welfare and happiness and for general economic betterment; what it costs; and how it will affect the future of the community."—*Information Service of the Rockefeller Foundation.*

WHO IS HEALTHIER—THE CITY OR COUNTRY BABY?

"It is natural to think that babies in rural districts would be healthier than those in congested cities," says Dr. George T. Palmer, Director of the Research Division of the American Child Health Association.

"Despite its recognized drawbacks, the crowded tenement within the reach of good medical attention and with pasteurized milk delivered on the dumb waiter is pressing the farmhouse with its abundance of pure air and fresh milk for first honors as the best place for babies to begin life."

Dr. Palmer makes this statement following the publication of the infant mortality report for 1923 recently prepared by the American Child Health Association.

He continues: "According to the report country babies are still leading in the health race but city babies are gaining. The death rate for rural infants is lower than the rate among city babies in sixteen out of twenty-seven states for which records are available. But in nine states the baby death rate in cities of more than 10,000 population is actually lower for 1923 than in the rural communities as indicated by the provisional reports of the United States Bureau of the Census."

This is true in California, Delaware, Maine, Maryland, New Jersey, New York, Oregon, Pennsylvania, and Washington. The death rates are the same for both city and rural districts in Minnesota and Ohio. The cities have gained in this indication of healthfulness since 1922. In that year only five states showed lower baby death rates in cities than in rural districts.

"Great credit is due the cities in these East and West coast states for overcoming their natural disadvantages," says Dr. Palmer, "and by progressive public health work involving pure water and milk supplies, extensive educational work through hospitals, clinics and nursing associations, to have materially cut down their baby death rates even below those of country districts."

Dr. Palmer urges complete registration of births as one method of reducing baby death rates. He explains that if the birth registration records are incomplete a community frequently does not receive the credit which it deserves. At the present time only 31 of the 48 states and the District of Columbia are in the Birth Registration Area, the territory in which birth records are filed with such accuracy as to be officially recognized by the United States Bureau of the Census.—*American Child Health Association.*

LIST OF OFFICERS OF OFFICERS' RESERVE CORPS (MED. DEPT.) FROM MASSACHUSETTS ORDERED TO ACTIVE DUTY DURING TRAINING SEASON, 1924

Name	Rank	Regiment	Address
Adams, Edward A.	Capt., Med.	94th Div., Cp. Devens	24 Washington St., Ayer
Aisner, Julius	1st Lt., Dent.	94th Div., Cp. Devens	141 Sutherland Rd., Brighton
Amiral, Hiram H.	Major, Med.	94th Div., Cp. Devens	270 Commonwealth Ave., Boston
Anthony, George Chenery	Capt., Med.	94th Div., Carlisle	3 Denton Rd., W. Wellesley
Babcock, Harold L.	Major, Med.	Z. I., 1st C. A., Sgn's Off.	Woodleigh Rd., Dedham
Basch, William E. R.	Capt., Med.	94th Div., Carlisle	183 Harvard Ave., Allston
Begg, Alexander S.	Col., Med.	94th Div., Carlisle	45 Hastings St., W. Roxbury
Belding, John E.	Major, Med.	94th Div., Cp. Devens	46 Elm St., Worcester
Brennan, Jeremiah F.	1st Lt., Med.	94th Div., Carlisle	St. Elizabeth's Hosp., Brighton
Chaput, Lucien R.	Major, Med.	94th Div., Carlisle	67 Broadway, Haverhill
Colgate, Charles H.	Major, Med.	94th Div., Carlisle	16 Webster St., Rockland
Collins, William J.	Col., Med.	94th Div., Carlisle	160 Main St., Northampton
Courtemanche, Arthur B.	Capt., Dent.	94th Div., Carlisle	272 Massachusetts Ave., Boston
Crockett, Eugene A.	Major, Med.	1st C. A., Sgn's Off.	298 Marlboro St., Boston
Crowe, Paisley S.	Capt., Dent.	94th Div., Carlisle	365 Hancock St., Wollaston
Cunha, Manuel F.	Capt., Med.	94th Div., Carlisle	258 Merrimack St., Lowell
Davidson, William B.	Capt., Med.	Ft. H. G. Wright, N. Y.	Rutland Sanitarium, Rutland
Doyle, John H.	Major, Med. (BAG)	Ft. Adams, R. I.	228 North Main St., Fall River
Emmons, Henry M.	Major, Med.	94th Div., Carlisle	320 Commonwealth Ave., Boston
Flaschner, Abraham M.	1st Lt., Dent. (BAG)	Cp. Devens	234 Boylston St., Boston
Freedman, David D.	Capt., Dent.	94th Div., Cp. Devens	1140 Columbus Ave., Roxbury
Getchell, Robert E.	Capt., Dent.	94th Div., Cp. Devens	128 Moody St., Waltham
Gooding, John H.	1st Lt., Med.	94th Div., Carlisle	584 Centre St., Jamaica Plain
Hardy, Stephen F.	Capt., Dent.	XI Corps, Cp. Devens	769 Columbia Rd., Dorchester
Hartnett, Edward D.	Capt., Med.	XI Corps, Cp. Devens	62 Prescott St., Boston
Hartnett, Patrick S.	Capt., Dent.	94th Div., Carlisle	153 Brighton Ave., Allston
Hussey, Earl U.	Capt., Med.	94th Div., Cp. Devens	32 Cedar St., Lynn
Jillson, Franklin C.	Capt., Med.	XI Corps, Cp. Devens	11 Hastings St., W. Roxbury
Keenan, George F.	Col., Med.	94th Div., Carlisle	207 Bay State Rd., Boston
Kenefick, William J.	Capt., Dent.	94th Div., Carlisle	153 Brighton Ave., Allston
King, Alfred E.	Capt., Med.	94th Div., Carlisle	83 Mt. Auburn St., Watertown
Mains, Charles F.	Major, Med.	94th Div., Cp. Devens	208 Ashmont St., Dorchester

Martin, Willard E.	Capt., Dent.	94th Div., Cp. Devens	30 Main St., Franklin
Nagle, Luke T.	Capt., Vet.	94th Div., Carlisle	12 Concord Rd., Watertown
O'Connell, John A.	Capt., Vet.	94th Div., Cp. Devens	11 Beacon St., Boston
Pease, Charles W.	Major, Med.	94th Div., Cp. Devens	78 Dedham Ave., Needham
Perkins, George E.	Capt., Med.	94th Div., Carlisle	536 Commonwealth Ave., Boston
Pettingill, Warren M.	Major, Med.	Cp. Devens (Unassigned)	27 Ridge Rd., Lawrence
Pfeiffer, Albert	Lt.-Col., Med.	94th Div., Carlisle	483 Beacon St., Boston
Pierce, Reuel A.	Capt., Med.	State Armory, Worcester	3 Irving St., Worcester
Pyle, Norman J.	1st Lt., Vet.	94th Div., Carlisle	Agricultural College, Amherst
Sanderson, George C.	Capt., Dent.	XI Corps, Cp. Devens	1842 Centre St., W. Roxbury
Scheller, Louis	Capt., Med.	94th Div., Carlisle	370 Main St., Brockton
Schofield, Roger W.	Major, Med.	94th Div., Carlisle	80 Apricot St., Worcester
Sherburne, William H.	Capt., Dent.	Ft. Adams, R. I.	397 Main St., Woburn
Smith, Edwin E.	Capt., Med.	94th Div., Carlisle	15 Kemper St., Wollaston
Streeter, John F.	Major, Med.	94th Div., Carlisle	55 Walnut St., Springfield

August 1, 1924.

THE RECESS COMMITTEE APPOINTED TO CONSIDER THE PROBLEMS OF THE BOARDS OF REGISTRATION AND MATTERS RELATING TO MEDICAL PRACTICE

This committee sat August 13 in room 448, State House. The work of the committee will consist for the present in conferences with the boards of registration. In September public hearings will be held. Until the public hearings are held information of the details will be withheld.

AN UNDESIRABLE SUPPORTER

The Caduceus, which is designated on the title page as *The Middlesex Medical Students' Magazine*, publishes the address of Dr. W. A. Pusey, president of the A. M. A., which it regards as a great speech and a vindication of The Middlesex Medical College. It alleges that Dr. Pusey "lays bare the greatest medical catastrophe, possibly the greatest crime of this generation." This catastrophe and crime consists in "the iniquitous unjust classification of medical colleges by the Council on Medical Education," according to the Caduceus.

Those who know Dr. Pusey will wait for his own statements before believing that he is taking sides with Middlesex. His contentions are in harmony with the feelings of many students of the social aspects of medical practice, and we believe that Dr. Pusey would never advocate encouraging any medical school which is unable to demonstrate its ability to provide adequate equipment for teaching medicine.

◆

CORRESPONDENCE

BOARD OF REGISTRATION IN MEDICINE

Walter P. Bowers, M.D.,
126 Massachusetts Avenue, Boston, Massachusetts.

Dear Doctor Bowers:

Will you please insert in the Medical Journal the enclosed Act, passed by the Legislature of this year, calling particular attention to physicians, that in order to prescribe a hypodermic syringe, hypodermic needle or any instrument adapted to the use of narcotic drugs by subcutaneous injection, such prescription must be written on blanks which will be furnished in duplicate by this Board, the original blank being forwarded by the physician to this office within five days, giving the detailed information required on the regulation blank. For further particulars, physicians should address Charles E. Prior, M.D., Secretary, Board of Registration in Medicine, Room 144, State House, Boston, Massachusetts.

Very truly yours,
Samuel H. Calderwood, M.D., *Chairman.*

The amended Act reads as follows:
(Chap. 239)

An Act Regulating the Possession of Hypodermic Instruments

Be it enacted, etc., as follows:

Section 1. Section two hundred and nine of chapter ninety-four of the General Laws, as amended by section one of chapter five hundred and thirty-five of the acts of nineteen hundred and twenty-two, is hereby further amended by inserting after the word "physician" in the tenth line the words:—or dentist,—by inserting after the word "articles" in the thirteenth line the words:—, or the holder of a permit issued under section two hundred and nine A,—and by inserting after the word "physician" in the twenty-first line the words:—or dentist, the holder of a permit issued under section two hundred and nine A,—so as to read as follows:—Section 209. No person, not being a physician, dentist, nurse or veterinarian registered under the laws of this commonwealth or of the state where he resides, or a registered embalmer, manufacturer or dealer in embalming supplies, wholesale druggist, manufacturing pharmacist, registered pharmacist, manufacturer of surgical instruments, official of any government having possession of the articles hereinafter mentioned by reason of his official duties, nurse acting under the direction of a physician or dentist, employee of an incorporated hospital acting under the direction of its superintendent or officer in immediate charge, or a carrier or messenger engaged in the transportation of such articles, or the holder of a permit issued under section two hundred and nine A, shall have in his possession a hypodermic syringe, hypodermic needle, or any instrument adapted for the use of narcotic drugs by subcutaneous injection. No such syringe, needle or instrument shall be delivered or sold to, or exchanged with, any person except a registered pharmacist, physician, dentist, veterinarian, registered embalmer, manufacturer or dealer in embalming supplies, wholesale druggist, manufacturing pharmacist, a nurse upon the written order of a physician or dentist, the holder of a permit issued under section two hundred and nine A, or an employee of an incorporated hospital upon the written order of its superintendent or officer in immediate charge. A record shall be kept by the person selling such syringe, needle or instrument, which shall give the date of the sale, the name and address of the purchaser and a description of the instrument. This record shall at all times be open to inspection by the department of public health, the boards of registration in medicine, veterinary medicine, and pharmacy and the board of dental examiners, authorized agents of said department and boards, and police authorities and police officers of towns. Whoever violates any provision of this section shall be punished by a fine of not more than one hundred dollars or by imprisonment in a jail or house of correction for not more than two years, or both.

Section 2. Said chapter ninety-four is hereby further amended by inserting after section two hundred and nine, the following new section:—Section 209A. A registered physician may, subject to the rules and regulations of the board of registration in medicine, issue to a patient under his immediate charge a permit to have in possession any of the instruments specified in the preceding section. Such permits shall be issued upon blanks to be furnished by said board and any permit so issued may be revoked at any time by it. (Approved April 12, 1924.)

NOTE—Section 209A was created for the purpose of enabling physicians to authorize the possession of hypodermic syringes for the use of insulin and such other medicines as may be necessary in the absence of the physician.

CYSTIN NEPHROLITHIASIS—REPORT OF A CASE

CROWELL, A. J. (*Journal of Urology*, June, 1924).

The etiology of the disease is still unsolved, but it is probably due to faulty metabolism. The urine should be examined for cystin in all cases of kidney colic and back pains, whether or not they are accompanied with kidney X-ray shadows. If the stone is associated with cystinuria, disintegration should be attempted by the internal administration of alkalis, pelvic lavage with alkaline solutions, and limitation of protein diet. [B. D. W.]

RENAL STONES PERMEABLE TO THE X-RAY

CULLIGAN, JOHN M. (*Journal of Urology*, June, 1924).

Shadowless renal stones are usually composed of pure cystin, xanthin or uric acid. Stones of such composition may produce shadows if other salts are mixed with them, or if their structural arrangement is favorable. Shadowless renal and ureteral stones can be diagnosed by areas of greater translucency in the pyelogram or the ureterogram. Stones that do not cast shadows in the roentgenogram will usually not be visible when the kidney is fluoroscoped after it is delivered through the incision. It may be advisable to perform nephrectomy in these cases when doubt exists concerning remaining fragments of stone. [B. D. W.]

NEWS ITEMS

AN anonymous gift of $25,000 has recently been received by the trustees of the Sharon Sanatorium.

THE NEW ENGLAND SURGICAL SOCIETY.—The annual meeting of this society will be held in Hartford, Conn., on September 26th and 27th, 1924. A very interesting program is being arranged.

W. T. G. MORTON MEMORIAL

THE dedication and unveiling of the monument in memory of Dr. William Thomas Green Morton, who was the first to administer ether for a surgical operation publicly at the Massachusetts General Hospital, October 16, 1846, will take place at Charlton, Massachusetts, his birthplace, on Labor Day, September 1, 1924. Members in the medical profession are cordially invited to attend.

ALONZO A. BEMIS, D. D. S.,
Secretary.

145 Main St., Spencer, Mass.

REMOVALS

DR. D. J. FENNELLY, of Fall River, Mass., has opened an office at Boston. He is associated with Drs. W. R. and A. W. MacAusland of Boston and Dr. R. W. Jackson of Fall River and Boston. Dr. Fennelly will be in Boston on Wednesdays and Fridays.

DR. CHARLES L. MORAN has removed his residence to 23 Sparhawk St., Brighton.

DR. DONALD J. MACLEAN is now first assistant physician at the Monson State Hospital, Palmer.

DR. CHARLES E. KNIGHT has removed from Union St. to 53 Franklin Ave., Rockland.

DR. HARVEY M. WATKINS has been promoted from the position of senior assistant physician at the Belchertown State School (Hampshire) to the Department of Mental Diseases at the State House, where he has his office. He has a residence in Arlington (Middlesex South).

DR. EDWARD A. RUSHFORD has moved from Essex Street to 184 Lafayette Street, Salem.

DR. EDWARD B. BIGELOW has moved from Northampton Street to 9 Walnut Street, Worcester.

DR. JANE G. STONE has removed from Lake St., Brighton, to Chenango Bridge, N. Y. Tuberculosis Hospital.

DR. CLARENCE M. CASSELBERRY has moved from 514 to 395 Commonwealth Ave., Boston.

DR. RANSOM H. SARTWELL has resigned as assistant superintendent of the Worcester State Hospital to become superintendent of the Rhode Island Infirmary, at Cranston, R. I.

DR. LEON W. CROCKETT now has his office in his home at 32 Monument Sq., Charlestown, having removed from Medford. He is a member of the Suffolk District Medical Society, by vote of the Council.

NOTICES

ERRATA

In a recent paper in the issue of July 24, by Dr. A. W. Rowe, under the title of "The Diagnosis of Endocrine Disorders," Table XV appeared incorrectly in a few copies. It should have appeared as follows:

TABLE XV

	Endocrine Focus			
	Thyroid	Pituitary	Gonad	
Basal Metabolism	— — —	—	—	
Sugar Tolerance	+	+ + +	Female Male	— — 0

Also in the paper by Dr. A. W. Rowe and Dr. Francis H. McCrudden in the issue of July 10, the word "Hyper-thyroidism" on page 61, column 2, seventh line from the end, should have been "hypo-thyroid."

Informal Staff Meetings will be held on the Boston Floating Hospital at 7.30 in the evening on the following dates: August 27, September 3. All physicians and medical students are cordially invited to attend.

AMERICAN ACADEMY OF PHYSIOTHERAPY

The annual meeting of the American Academy of Physiotherapy will be held September 8, at 10 A. M., at the Hotel Pennsylvania, New York City.

Important papers from many prominent members of the medical profession will be presented, both by members and invited guests.

Frank B. Granger, M. D., *President.*
Byron Sprague Price, M. D., *Secretary.*

UNITED STATES CIVIL SERVICE EXAMINATION

The United States Civil Service Commission announces the following open competitive examination:

Occupational Therapy Aide
Occupational Therapy Pupil Aide

Receipt of applications for the above positions will close December 30, 1924. Vacancies exist in the Veterans' Bureau. The entrance salary for occupational therapy aide ranges from $1,680 to $1,800 a year, and for occupational therapy pupil aide, from $1,000 to $1,400 a year. Where quarters, subsistence, and laundry are available, a deduction of $600 a year will be made from the salary in cover such items.

Applicants for these positions must have been graduated from a four years' high-school course or must be qualified, by reason of formal study in an institution, for admission to a college or university of recognized standing; provided, that for not more than two years of the high-school course an equivalent period of actual experience in occupational therapy may be substituted. Certain other requirements must be met in the way of education and experience.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the board of U. S. civil-service examiners at the post office or customhouse in any city.

NOTICE OF EXAMINATION FOR ENTRANCE INTO THE REGULAR CORPS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Examinations of candidates for entrance into the Regular Corps of the U. S. Public Health Service will be held at the following-named places on the dates specified:

At Washington, D. C.	September 15, 1924
At Chicago, Illinois	September 15, 1924
At San Francisco, Cal	September 15, 1924
At New Orleans, La.	September 15, 1924

Candidates must be not less than twenty-three nor more than thirty-two years of age, and they must have been graduated in medicine at some reputable medical college, and have had one year's hospital experience or two years' professional practice. They must pass satisfactorily, oral, written and clinical tests before a board of medical officers and undergo a physical examination.

Successful candidates will be recommended for appointment by the President with the advice and consent of the Senate.

Requests for information or permission to take this examination should be addressed to the Surgeon General, U. S. Public Health Service, Washington, D. C.

H. S. Cummings, *Surgeon General.*

RECENT DEATH

Dr. William Penn Hammond, a retired member of the Massachusetts Medical Society, former practitioner of Charlestown, died at his summer home at Clifton (Marblehead) August 10, 1924, at the age of eighty.

Dr. Hammond, a native of Plympton, was born Sept. 15, 1843, son of Joseph Sturtevant and Betsy (Parker) Hammond. He was descended on his father's side from William Penn; on his mother's from the Parkers, who were prominent in the colonial history of New England. He was graduated from Phillips Andover Academy in 1865, received his A. B. degree at Amherst College in 1869, and his degree of doctor of medicine at Harvard Medical School in 1873. He was house officer at the Boston City Hospital following his graduation and then took up general practice at Charlestown. His first wife was Sarah Abbie Harrub of Plympton. He was a member of the American Academy of Medicine and the Harvard Medical Alumni Association.